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**The London School of Economics and Political
Science**

*Rethinking Urban Risk and Adaptation: The Politics of
Vulnerability in Informal Urban Settlements*

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A thesis submitted to the Department for
International Development of the London School of
Economics for the degree of Doctor of Philosophy,
London

September 2014

Declaration

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Abstract

Informal urban settlements are increasingly recognised as vulnerable to climate-related risks. Their political-legal status is known to influence their vulnerability, but the linkages between state governance and vulnerability in this setting remain under-researched. In particular, as more urban governments develop climate risk assessments, questions arise about how risks are defined, the politics behind the processes of risk definition, and the impact this has on local-scale vulnerabilities.

The thesis proposes a new conceptual direction for urban vulnerability research. First, it draws on livelihoods debates to highlight the embeddedness of the livelihoods pathways that shape vulnerability in social and political relations. Second, the thesis shows how the idea of co-production, developed in the context of Science and Technology Studies (STS) and public policy, can be used to investigate the state politics of risk assessment in informal, urban areas. This theoretical frame generates insights at the interface between development studies and STS, providing a new perspective on questions of how urban communities adapt in informal areas, who adapts and what they are adapting to.

The conceptual propositions of the thesis are applied to a landslide risk management programme in three informal settlements in Bogota, Colombia. The thesis presents empirical findings that illustrate (i) how risk assessments are shaped by state cultures, values and practices particular to informal sites in ways that drive new forms of inclusion and exclusion; (ii) how inhabitants respond to risk in the context of socially-embedded meanings and identities and their relationships with the state; and (iii) how people's agency to transform risks depends on fragile social and political relationships and the exercise of political agency. The thesis argues for a re-politicisation of approaches to understanding urban risk and adaptation, and for transformations in policy to reflect this approach.

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Chapter 1 Introduction: The Challenge of Urban Climate Risk

1.1 Understanding climate risk in an urban world

"Our struggle for global sustainability will be won or lost in cities."

– Ban Ki-Moon, UN Secretary-General, April 2012¹

In a world now characterised by urban growth and settlement, understanding and adjusting to urban environmental risk is a pressing concern. More than half the world's population now lives in urban areas (World Bank 2010). Debates about how to adapt to future climate risks have become increasingly politically prominent in cities over the past decade and reinvigorated discussion about how best to tackle existing disaster risks in urban areas (Carmin, Nadkarni, and Rhie 2012). Urban areas in low and middle income countries, where financial and institutional resources are often the scarcest, are most vulnerable to the impacts of weather and climate-related events (Bicknell, Dodman, and Satterthwaite 2009). In turn, poor urban populations are often the hardest hit as both large disaster events, but also smaller, recurrent events cause losses to lives and livelihoods (ibid.). A large proportion of this vulnerable group live in informal urban settlements (World Bank 2011)².

Research into urban climate change risk, in particular in cities of the global south, has grown, but still remains relatively limited in its empirical breadth and conceptual scope (Romero Lankao and Qin 2011). The oldest, and arguably predominant, paradigm in urban risk studies focusses on defining the hazard in question and mapping its subsequent social impacts (ibid.). This paradigm gives rise to technical interventions reliant on predicting physical events and putting in place the physical and social infrastructure to protect against them (Moench, Tyler, and Lage 2011). There is a long history of critique from the field of disaster risk in response to this form of approach that also applies to urban studies (Varley 1994; Blaikie et al. 1994; Pelling 2003). Accordingly, a further paradigm in work on urban climate risk has drawn on this tradition to ask not just what physical events occur and what these

¹ Remarks to the High Level Delegation of Mayors and Regional Authorities, in New York, 23 April 2012.

² In the only guide to date as to the global scale of informal settlement, UN-Habitat estimates that one billion people already live in slums, or areas where households lack one or more conditions relating to housing quality, water and sanitation access and tenure security, and this is projected to double by 2030 (UN-Habitat 2011). It is commonly the case that between one-third and one-half of the population of cities in low and middle income countries lives in informal settlements (International Federation of Red Cross and Red Crescent Societies 2010).

events do, but how urban livelihoods and institutions mediate who is vulnerable to risk and why (see, for example, Moser et al. 2010; Pelling 2003; Jabeen, Johnson, and Allen 2010; Chatterjee 2010).

Two questions arise which warrant further research. First, what conceptualisations of livelihoods and institutions underpin approaches to urban risk as *social* vulnerability? Second, do such approaches adequately reflect the nature of livelihoods and institutions in urban settings, and, in particular, informal, urban contexts? Whilst ‘urban’ livelihoods and institutions should not be homogenised, or treated as divorced from rural contexts, studies on urban poverty and vulnerability highlight certain distinct features. The urban poor rely less on ‘natural’ resources and more on their labour power than in rural areas, more on housing as a key productive asset and on social connections to make their way in the city (Moser 1998). Characteristics of the urban context that shape the nature of urban poverty and vulnerability include density, the presence of state institutions, the marketization of goods and services, pressure on land and housing (International Federation of Red Cross and Red Crescent Societies 2010); heterogeneity, mobility, segregation and possible violence and criminal activity and precarious, under- and unemployment, over-crowding, poor quality shelter and infrastructure and urban environmental risks such as waste disposal (Fay 2005; Baker 2012; Moser 1998; Hardoy and Pandiella 2009).

In informal urban settlements, or those constructed outside formal regulation³, gaining access to infrastructure and services is critical to protecting against climate-related risks (World Bank 2011; Revi et al. 2014). As Moser and Satterthwaite stress, this lack of infrastructure is not only due to a lack of resources but is also strongly related to the nature of politics and governance:

The lack of protective infrastructure is partly linked to the constrained investment capacity of city and municipal governments. But in some cities, it is associated more with the problematic relationships between

³ Amidst on-going debates about definitions of informality, Porter provides a helpful common definition, “Informality is associated with modes of human settlement and trade or exchange that occur outside of formal legal structures and processes” (p.115) (Porter 2011). As Duminy clarifies, this is often associated with illegal practices, but may also refer to those relatively unregulated or controlled by formal institutions (Duminy 2011). Whilst these may be strongly inter-related with formal practices, as Porter explains, “it is useful to hold these two modes of urbanisation distinct from each other to explore the nature of their relations more clearly” (p.116) (Porter 2011).

local governments and urban poor groups living in high-risk informal settlements. (p.9) (Moser and Satterthwaite 2008)

In addition, insecure forms of tenure – and the associated lack of rights – are highlighted in several studies as affecting the provision of infrastructure and services, leading authors to define a ‘political-legal’ domain of vulnerability (Moser et al. 2010; Roy, Hulme, and Jahan 2013)⁴.

As well as the need to extend this empirical work and apply it to different informal urban contexts (which vary from peri-urban to inner city settings), little, if any, scholarship has re-appraised the implications of these findings for our underlying theoretical approaches to understanding urban risk and vulnerability. Analysts and advocates of social vulnerability approaches stress their potential to account for the social, economic, political and cultural processes that drive risk (Ribot 2009) and to provide an actor-centred perspective that emphasises the role of institutions and power relations in risk formation (Miller et al. 2010). However, the ways in which urban climate risk is currently understood as a social phenomenon is restrictive in its attention to the important questions of politics, power and governance and in its exploration of the meanings, identities and perceptions that frame agency. This includes examining people’s adaptations to environmental risk in the context of real and perceived changes to their livelihoods, and not just in response to physical hazard events alone (Forsyth and Evans 2013). As Chapter 2 develops, these gaps in existing approaches reflect the limitations of the particular conceptual frameworks to which work on urban climate risk is indebted (Scoones 2009, Forsyth 2007). A wider reading of debates about livelihoods, access and entitlements potentially provides new insights and methods for existing approaches and better elucidates how social relations and institutions drive vulnerabilities to risk in informal, urban settlements.

Indeed, the theoretical concepts and frameworks offered by the risk literature, drawing mostly on livelihoods and political ecology perspectives, provide little purchase on two further themes of importance: understanding the practices through which urban states govern, and the knowledge and expertise of government that supports this. Although vulnerability analysts have stressed that it is the lack of state institutions that drives vulnerability in informal areas, it is also the case that state

⁴ Insecurity can take multiple forms, from the fear of eviction to the vagaries of renting, and landlords’ lack of commitment to housing improvement (Roy, Hulme, and Jahan 2013).

institutions are deeply implicated in their formation and development. Urban scholars in particular have noted that the traditional characterisation of urban informality as ‘beyond’ the state realm in fact masks the state’s role in defining land use and rights to services, and neglects analysis of the formalisation processes that are a feature of many cities (Roy 2005; Varley 2013; Porter 2011). Increasingly, state and non-state organizations are generating knowledge to address environmental risks arising from climate change or related hazards in cities. But the wider politics of how risk is identified, and connects to the political driving forces of vulnerability, is largely unexamined. How might these processes influence the emergence and nature of climate risk and vulnerability in informal, urban settlements?

1.2 The politics of urban climate risk

Questions of governance and expertise shift us onto post-structural terrain, in their concern with knowledge-power relations, meaning and identity, and the intent to offer nuanced and historically contingent accounts of these phenomena (Birkenholtz 2008). Here, a growing amount of scholarship has emerged in the field of disaster risk to stress that urban disaster risk assessments and associated management practices are also tools for the exercise of state power and that purportedly ‘technical’ knowledge about risk both enables and sustains particular forms of rule (Mustafa 2005; Rebotier 2012). The point is developed by Zeiderman, arising from a more explicit engagement with theories of governmentality, or the reasoning and practices that shape the conduct of groups and individuals. In counterpoint to existing vulnerability scholarship, he asks: “Rather than investigating how the poor came to inhabit landscapes of risk...How did “zones of high risk” come to inhabit the territories of the poor?” (p.6) (Zeiderman 2012). This scholarship shows how new techniques of risk governance function to define risk in heterogeneous and contingent ways, and redefine the ways in which poor groups engage with the state (Zeiderman 2012; Zeiderman 2013).

Whilst this work raises important questions about how risk is politically embedded in cities, and with what effects, other scholarly traditions invite us to inspect more closely the constitution of technical or expert knowledge in the political realm. In some approaches to Science and Technology Studies (STS), it has long been noted that risk assessments embody particular social assumptions about agency, causality and responsibility, and arrive in context not as neutral exercises, but, to use Wynne’s

memorable phrase, ‘dripping with meaning’ (Jasanoff and Wynne 1998; Wynne 1996). Further work in STS has proposed the idiom of co-production to understand how “how the making of knowledge is incorporated into the making of states but also how practices of governance influence the making of knowledge” (p.3) (Jasanoff 2004). Co-production thereby opens out from STS’s traditional concern with social influences on scientific knowledge to account for the workings of the social world and their influence on claims about the ‘natural’ order. In the context of urban risk, these theoretical standpoints enable us to move beyond existing scholarship to view the inner workings of risk assessment, and better trace its effects.

The idiom of co-production, however, does not specify how we ought to understand the social component in question: the ‘black box’ of urban government. Existing scholarship on urban risk tells us little about how urban governments work in informal terrain, and how new categories and boundaries of formality, legality and illegality are constructed, although this has been of increasing concern in urban studies (Varley and Fernandes 1998; Varley 2013; Roy 2005). We should not assume either that states rule as one body, with state theorists advancing existing governmentality studies to analyse how the multiple bureaus, agencies and levels of state function together to produce poverty (Gupta 2012). Taken together under the framing idea of co-production, these theoretical ideas suggest a new avenue for investigating how urban states control for risk and vulnerability in informal urban settlements.

This frame for understanding the co-production of urban risk and urban government also suggests that in order to understand citizen’s responses to risk governance, it is necessary to understand how people respond to the meanings, values and practices lodged within it. Earlier work in STS suggests that risks are experienced in this context as risks to people’s own identity, and mediated by relationships of dependence on state institutions and of trust in expertise (Wynne 1996). Placed in the context of urban risk scholarship, this perspective adds depth and nuance to accounts of agency in existing post-structural scholarship which stress how communities resist dominant knowledge (Rebotier 2012; Mustafa 2005) and how new risk subjects navigate the new architectures and frames of risk governance (Zeiderman 2013). Such readings of societal responses to risk also extend the treatment of agency in the urban vulnerability and livelihoods literature discussed in Section 1. The concern of

vulnerability theorists with the material conditions of vulnerable groups, however, gives rise to important questions that are not addressed in the STS or post-structural analysis of urban risk about the livelihoods constraints to and opportunities for agency, and the opportunities and constraints for particular social groups (although other post-structural scholars have certainly raised questions about variations in subjectivity; see Agrawal 2005).

Bringing these perspectives to bear on vulnerability debates is important to understanding the limits to state power. It is also important in redressing the lack of research illustrating how city-wide policies impact on vulnerable groups themselves (Bulkeley 2010). Post-structural analysis has so far not grounded the study of the political and institutional dynamics of urban climate risk governance in concrete analysis of the outcomes for risk and vulnerability. This thesis aims to do so. It also operationalises at the urban scale new thinking in disaster risk studies about the role of the disaster management cycle itself in driving risk and vulnerability (DKKV 2012; IPCC 2012). The point is important to disasters analysis, as it affects the conceptualisation of disaster events, as not only discrete events in time but as continuous, complex and unfolding phenomena (DKKV 2012).

Finally, the frame I suggest here for understanding the urban politics of climate risk connects debates about environmental risk with those about urban governance. The separation of these two fields has been noted by a growing number of authors (Allen, Boano, and Johnson 2010). As Harriet Bulkeley notes:

...the fundamental disconnect between scholars whose primary focus is on understanding the dynamics of urban governance, who have traditionally neglected the environmental sphere, and those whose first concern has been with understanding responses to climate change in the city, predominantly from an environmental or political science background. (p.240)(Bulkeley 2010).

Analysing the practices of the urban state alongside the practices of climate-related risk assessment, I argue, generates new insights about the vulnerability of informal, urban settlements.

1.3 The politics of vulnerability in the informal settlements of Bogota, Colombia

The city of Bogota, Colombia, is typical of many cities of the global south in containing a high proportion of informal settlement, but, more uniquely, has been the

site of long-standing government interventions which allow further questions about urban risk governance and expertise in informal settlements to be explored. In Bogota, as in many Latin American cities, informal settlements ring the central city, spilling out onto the enclosing hillsides. Here, poor construction on old quarry sites and unstable soils, violent conflict, poverty, a lack of infrastructure and services and bi-annual rains all contribute to the occurrence of landslides and their ongoing impact on human lives and livelihoods. Whilst exact numbers are imprecise and contested, thousands of people live in landslide-affected areas. However, unlike many other cities, in Bogota a sophisticated and globally renowned system of risk management penetrates these areas, and has done so since the 1990s. A dedicated cadre of engineers produce some of the most detailed records of risk and vulnerability in the world, on the basis of which the city government has implemented a host of resettlement programmes, structural mitigation works and education campaigns (Dickson et al. 2010). These measures have formed - and still form - part of a broader government intervention to reweave Bogota's urban fabric, recognising and formalising informally-settled sites. Bogota, and in particular the *ladera* or hill-slopes programme with its attention to these informally-settled sites, therefore stands out as an appropriate site in which to investigate the politics and governance of risk and expertise in informal urban settlements.

As I visited the city's landslide 'risk zones', I was struck by ongoing habitation in the 'high risk' areas, despite their demarcation for clearance through resettlement, and the reoccurrence of landslide events. Analysis of vulnerability to disaster and climate change risk in Bogota to date highlights how the risk management paradigm reflects an 'impacts-based' approach, aiming primarily to protect against the 'natural', but has little engaged with the social vulnerability of affected communities (Lampis and Rubiano 2012). Untangling the complex stories of inhabitants and their families, existing social vulnerability frameworks explained the social forces that propelled the habitation of the zones and how people were able or unable to prepare for or recover from landslide impacts – but only to a certain extent. Important questions remained which included why some households were eligible for resettlement and others not, why some households remained and others left, and how to make sense of the petitions and court judgements pressed into my hands by desperate residents, revealing of a politics of claim and counter-claim by state

authorities hidden by official narratives of the hill-slopes programme. Further, risk zones became places of ‘para-legality’ for people (Chatterjee 2006), in and between formality and illegality, in which people complained that they were now more rather than less vulnerable to the impacts of landslides. What answers lay in the urban politics of the ‘predict-and-prevent’ paradigm?

In a different theoretical vein, Bogota has also been the subject of recent scholarship interrogating urban risk governance. This work has historicised the phenomena of the ‘high risk zone’ and illustrated how the new forms of governance it engenders create new entitlements for ‘at risk’ populations, who negotiate for these entitlements within certain discursive frames (Zeiderman 2013; Zeiderman 2012). Further, the work highlights how the boundaries of ‘risk zones’ are not just set in the hard science of probabilistic calculation but fixed in highly contingent, personal encounters (Zeiderman 2013). However, this leaves unexplained the multiple forms of exclusion and inclusion I witnessed. Personal accounts indicated that one’s risk status was defined not only in the process of risk assessment, but in an, at times, bewildering bureaucratic classification system. I found striking parallels in literature on medical risks which traces the exclusion of HIV/AIDS patients and the inclusion of new social categories in health classification systems back into the co-production of risk and forms of institutional categorisation (Biehl 2005; Epstein 2009). Stood in the half-empty barrio of Brisas de Volador, overshadowed by a huge placard advertising the presence of a high risk zone, I asked: What vision of risk was really being projected from above?

Further, in lengthy interviews in people’s houses, or perched on the cleared plots of their neighbours, the view ‘from below’ was marked not just by a concern or lack of concern with landslide risk but concern for shelter and decent housing, for recognition as citizens, a sense of mistrust in the seemingly arbitrary imposition of boundaries and classification systems by state authorities and the ‘*mamagallo*’ or ‘*tramitologia*’, different words for the bureaucratic procedures that weighed down state projects and programmes. Different elements of these discourses were more or less prominent among different social groups, but the elements were inseparable. Alongside petitions and protests to state bodies, some people were moving out whilst others shored up their houses as best they could. Others wearily answered ‘we must wait and see’. What were people responding to, if not the probabilistic calculations

of state engineers? What explained who could navigate the new state architecture of risk management, or find a new home to rent elsewhere, and who could not? On their own, neither existing livelihoods-based nor post-structural accounts of agency could make full sense of these questions.

The case study of the *ladera* programme in Bogota therefore provided the opportunity to investigate, first, the co-production of urban climate risk and the urban governance of informal areas, second, household and community responses to climate-related risks, including their presentation in formal risk assessments and, third, the impacts of this politics of risk on the form and occurrence of vulnerability. In doing so, the analysis built on existing theories of urban vulnerability and governmentality scholarship concerned with urban risk, interrogating the questions between them but also developing a new direction founded on debates in livelihoods research, urban studies and STS. This theoretical vantage point also raised new questions about urban risk management and adaptation policies and their relationship to urban policies of formalisation and resettlement, policies at the heart of the *ladera* programme.

1.4 Rethinking urban risk and adaptation: research questions and thesis overview

The predominantly informal nature of urban vulnerability to climate risks in cities of the global south, and the political nature of the drivers of vulnerability in these areas, raises new questions about the politics of climate risk and vulnerability that this thesis aims to investigate. Whilst increased concern to understand the potential impacts of climate change in cities has raised the profile of debates about urban risk, analysis of the politics of urban policy-making, the practices through which it is enacted and how it is received or contested by those it affects has been neglected (Bulkeley 2010). This is reflected in practice, as well as in theory (Birkmann et al. 2010). Further, the politics underlying how urban risks are identified by state and non-state actors remains largely unexamined, with a dearth of analysis on how such a politics of risk connects to debates about the drivers of vulnerability.

In light of these gaps, two over-arching questions guided the research for this thesis:

1. *Do approaches to climate risk need re-thinking in informal urban settlements and, if so, how?*

With regard to this first question, as the first section outlined, studies of urban climate risk in informal settlements suggest the need for greater attention to the political and governance dimensions underlying vulnerability to risk. Yet these dimensions are currently inadequately theorised in existing analytic approaches to understanding risk, which understand risk either as physical hazard or as social vulnerability. In conjunction, through the wider reading of the livelihoods and entitlements literature advocated in Section 1, I suggest fresh perspectives might arise that reshape the approaches to analysing and acting on social vulnerability to urban risk. Reappraised, such approaches potentially shed new light on the drivers and processes underpinning the vulnerability of informal settlements.

The research question therefore encapsulates a number of sub-questions:

- *How might predominant approaches to urban climate risk be re-thought to better account for the nature of risk and vulnerability in informal, urban settlements?*
- *How might existing conceptualisations of urban risk and vulnerability be extended to account for the politics of climate risk governance?*
- *What are the consequences of applying such an extended approach for the analysis of risk and vulnerability in informal, urban settlements?*

2. *How do states control for risk and vulnerability in informal urban settlements?*

With regard to the second question, a focus on the politics of urban climate risk and the rise of climate risk governance in cities of the global south demands, I suggest, attention to the practices of states in informal, urban settlements. This includes understanding the politics of risk assessments in these areas. The impact of the state goes beyond planned risk management interventions, however, with the question intended to draw attention to the intended and unintended effects of broader state actions as they impinge upon risk and vulnerability. In addition, the question of how states control for risk and vulnerability allows for both positive and negative effects to be explored.

The second research question can be broken into sub-questions as follows:

- *How can we best understand the politics and practices of state interventions to manage risk and vulnerability in informal, urban settlements?*
- *In particular, how do state risk assessments of climate-related risks become sites of political inclusion and exclusion?*

- *How do state risk assessments co-produce risk with particular forms of urban 'subject' and how does this impact on people's ability to adapt to risk?*
- *How do we explain the responses of societal actors to the state management of risk in informal areas, and how does this influence vulnerability and adaptation to risk?*

Thesis overview

The thesis proceeds as follows: Chapter 2 '*Approaches to urban risk and vulnerability and new ways forward*' is the first of two chapters that sets out the conceptual basis of the thesis. It critically examines current approaches to understanding climate-related risk in the social sciences and their application in urban contexts. The chapter justifies the use of a vulnerability-based approach in the thesis, but argues that a wider reading of the livelihoods and entitlements literature provides important insights for social vulnerability analyses of urban risk, and for vulnerability analysis in informal, urban settlements.

Chapter 3 '*The state and the politics of urban climate risk*' takes up the challenge to existing vulnerability approaches outlined in Chapter 2, the need to better account for the state politics of urban climate risk. The chapter introduces new theoretical perspectives from Science and Technology Studies (STS), political science and urban studies to do so. It suggests that more explicit engagement with co-productionist ideas about the ways in which knowledge about risk influences and is influenced by the practices of government is necessary if we are to understand better how risk becomes politically embedded in cities. However, co-production itself does not specify how to understand those practices in an urban governance context; the chapter then sets out how ideas from urban studies and state theory might address this. The final part of the chapter discusses the question of understanding societal agency in response to state risk assessment, critically assessing contributions from the fields of disaster studies, governmentality theories and STS.

Chapter 4 '*Research methodology and context: Exploring new directions for vulnerability research in an urban context*' justifies the use of a case study approach to the research questions and sets out the methods used to answer them. It discusses the use of open, flexible methods such as oral histories to explore the research questions, and reflects on the challenges and ethics of research in low-income urban

communities. The chapter then provides a background to the case study and in particular the study sites for the research.

Chapter 5 '*States of Risk: The Co-production of Landslide Risk Assessment in the Informal Settlements of Bogota, Colombia*' draws on the theoretical frame set out in Chapter 3 to show how knowledge about risk used in the hill slopes programme influences and is influenced by the politics and practices of government in ways that reconfigure the occurrence of vulnerability and disaster. The chapter illustrates how risk assessments are shaped by the political context of informality, in particular the culture and values that have accompanied Bogota's urban transformation. It examines how the practices of urban governance in informal settlements shape who is defined as 'at risk', and how exposure and sensitivity to risk is influenced by the operations of multiple state agencies and related actors.

Chapters 6 and 7 then detail how people respond to climate-related risk in informal urban settlements. Chapter 6 '*But we are not illegal': responses to landslide risk in three informal settlements of Bogota, Colombia*' asks what risks people are responding and adapting to, and how these responses reflect the influence of environmental change on people's livelihoods. The chapter extends livelihoods-based vulnerability analysis by accounting for the role of socially-embedded meanings and identities in people's responses to risk, and in their response to the state co-production of risk assessments. It also analyses how people's responses to risk are shaped by the institutional relationship between state and citizen, and relationships of trust and inter-dependence with institutions. Finally, the chapter deepens the accounts of societal responses to risk assessment discussed in Chapter 3, highlighting how such responses vary across social groupings and how agency is shaped by convergence with, and resistance and ambivalence to state risk management, and the influence of state framings and local idioms of identity and meaning.

Chapter 7 '*Redefining risk from below: agency, access and vulnerability to landslide risk in the informal settlements of Bogota, Colombia*' examines how inhabitants of risk zones use their agency to re-define the risks they face, and what facilitates or constrains possibilities to re-shape risk 'from below'. The chapter shows how forms of socio-political agency are exercised by the urban poor as an 'adaptive strategy' in

the face of risk. It examines how different strategies for managing risk, including such socio-political agency, are enabled and constrained, first, by the relationships and networks which shape people's livelihoods options and, second, by the politics of institutional processes at different scales, from democratic reform in the city to the local politics of community organisation. The chapter therefore brings new insights to bear on questions of how people adapt and who is able to adapt in informal, urban settlements that extend both existing vulnerability theories and post-structural scholarship on urban risk.

Finally, Chapter 8 '*Rethinking Urban Risk and Adaptation*' concludes. The chapter reviews the main findings and original contributions of the thesis, arguing for a re-politicisation of our approaches to urban risk. It discusses the implications for policy and for future research.

Chapter 2

Approaches to Urban Risk and Vulnerability and New Ways Forward

2.1 Introduction

As Chapter 1 highlighted, poor urban settlements are not only highly vulnerable to the impacts of climate-related events, but the drivers, characteristics and consequences of their vulnerabilities have been much less systematically investigated than for other geographic sites. Informality – as a mode of settlement not just with a particular ‘way of life’ but as a way of life constructed by and within the processes of urban development more broadly – emerges as a key feature of many of these sites. The critical question that arises from this observation, however, is whether the analytic approaches we have for investigating climate-related risk and vulnerability adequately explain the dimensions of climate risk and vulnerability in this – pressing – context.

Chapter 2 now examines current conceptual and applied approaches to urban risk and vulnerability, arguing that new analytic approaches may be necessary to fully understand risk and vulnerability in informal, urban settlements. First, Section 2.2 sets out existing approaches to understanding urban climate risk and vulnerability. While impacts-based approaches, which trace the impact of physical events on particular social phenomena, dominate the landscape of urban risk analysis, the section makes the case for the ongoing relevance and importance of vulnerability analysis. It argues that vulnerability analysis allows us to connect up with the social, political, cultural and economic processes driving risk, as well as allowing for a strong conceptualisation of actors, institutions, power relations and poverty distributions.

The crux of the argument, that current approaches to urban social vulnerability analysis in themselves need to be extended, then follows (Sections 2.3-2.5). The chapter traces the genesis of current approaches in livelihoods-based and political ecology thinking, but argues that the treatment of these fields in the urban climate change debate is overly restrictive. By engaging with historic and contemporary debates about the nature of livelihoods, in particular, new insights can be brought to bear on questions of risk and vulnerability. The chapter draws on four related debates to make this case: first, concerning the use of livelihoods frameworks to specify

environmental risks; second, debates within livelihoods scholarship about the social embeddedness of livelihoods activities; third, theories of access and entitlements relations; and fourth, debates within livelihoods scholarship but also development studies about the importance of understanding the political as well as social realm in shaping responses to risk. Based on insights from these debates, I argue for an approach to urban risk that provides a stronger account of agency (and the meanings and identities that shape it) and the political and institutional dynamics of urban informality in which agency is exercised.

Further, Chapter 1 posed the additional research question of how states control for risk and vulnerability in informal urban settlements. This chapter provides a conceptual avenue for this question in highlighting how approaches to risk themselves may become instrumental to forms of governance in ways that may be contested ‘on the ground’. However, I conclude that existing theoretical approaches to urban risk fall short on addressing questions about how we understand states themselves and the role of expertise and the construction of knowledge in the context of state interventions. The following chapter takes up conceptual approaches to these questions, and asks what this implies for urban risk.

2.2 Existing approaches to urban climate risk and vulnerability

This section provides a critical introduction to the main approaches to understanding urban climate risk and vulnerability, situating urban debates in the context of broader debates about climate risk. It argues for the ongoing importance of a social vulnerability approach to understanding urban risk, and justifies the use of this approach in this study.

i. Impacts-based and vulnerability approaches

The (small but increasing) sub-set of studies on urban climate change have so far tended to replicate a broad distinction between *impacts* and *vulnerability* approaches to risk evident in wider studies of climate vulnerability (Romero Lankao and Qin 2011), reflecting also a longer trend in disaster risk studies to adopt a hazards-based or vulnerability perspective (Varley 1994; Pelling 2003)⁵. The operationalization of

⁵ The core difference between the disaster risk and climate change fields, however, is the focus in climate change adaptation studies on vulnerability to climate change-related shocks or stresses, i.e. the future impacts of anthropogenic climatic change, and how adaptation (or a process of adjustment in behaviour or characteristics) might occur in response to this specific sub-set of climate-related risk

disaster management and adaptation policies in cities has so far leant towards impacts-based approaches, which begin ‘up in the air’ with predictions of the physical phenomena in question (IPCC 2012; Baker 2012; Chatterjee 2010; Birkmann et al. 2010). The resulting ‘predict and prevent paradigm’ is so called as it tends to result in technical, technology-based interventions that rely on knowing future climate conditions in order to provide the appropriate infrastructure, be it ‘hard’ infrastructure such as sea walls or dams, or ‘soft’ infrastructure such as early warning systems or new urban zoning regulations (Moench, Tyler, and Lage 2011).

In this context, the concept of vulnerability itself tends to acquire different meanings. As a common general meaning, vulnerability to climate-related risks may usefully be defined as the susceptibility of a population, system or place to harm from a particular hazard (Cutter et al. 2009; Brooks 2003). However, as Brooks clarifies, risk may be more or less associated with the notion of biophysical vulnerability or the notion of social vulnerability (Brooks 2003). The former is more strongly associated with an impacts-based approach to risk and refers to the physical component associated with a hazard and its primary impacts (with Brook’s definition of hazard in itself meaning climate events as purely physically defined, so the manifestation of climate change or variability in the ‘natural’ system). Its primary emphasis, as described, is on identifying, defining and preventing the impacts of a physical phenomenon. The latter refers to the social properties of the system affected that make it susceptible to that hazard (Brooks 2003) and may be better referred to as the ‘social’ or ‘inherent’ vulnerability approach – with a primary emphasis on altering social arrangements in an affected place or system (discussed in more depth below) (Brooks 2003; Romero Lankao and Qin 2011).

(Brooks 2003)⁵. This difference between fields leads to different forms of hazard assessment: in disaster planning, assessments tend to be based on probabilistic analysis, or the likelihood of a particular hazard or consequence from a particular hazard (with consequence encompassing various dimensions) (IPCC 2012; Brooks 2003), while climate change-oriented assessments engage more heavily with climate science modelling to provide long-term predictions of climatic trends (Dickson et al. 2010). However, in practice, given the uncertainties of climate science and the difficulty of projecting vulnerabilities into the future, institutional and social approaches to adaptation work have increasingly been rooted in present responses to climate variability. In planning terms, existing disaster response institutions and policies have therefore provided a major ‘entry point’ for city governments broaching adaptation issues, and climate change-related initiatives tend to focus, in the main, on current-day hazards which directly impact on poor populations, such as flooding and landslides, in contrast to the indirect effects of impacts to infrastructure or ecosystems.

Impacts-based approaches, therefore, map causation from physical events onto particular social phenomena and systems, such as a particular social outcome (e.g. mortality) or the outcomes for a particular geographic area, for which hazards data may be coupled with forms of socio-economic data to determine differential spatial impacts (Romero Lankao and Qin 2011). Where there is a sense of social vulnerability potentially embedded in these latter frameworks, in that risk areas are also determined by social variables such as income or housing quality, these are nevertheless ‘taxonomic’ or ‘linear’ modes of capturing socio-economic ‘snapshots’, or ‘adding up’ socio-economic information (Ford 2002; Cannon 2000).

However, the use of ‘taxonomic’ indicators pre-defines what are actually complex relationships. Vulnerability does not always correlate neatly with poverty, and highly aggregate indicators may mask high differentiation in low-income areas (Adger and Kelly 1999). Relatedly, impacts-based approaches have been critiqued for being generally weak on dynamism and in addressing the processes that drive vulnerability as well as providing causal explanations (Adger 2006; Blaikie et al. 1994). Further, they neglect how institutions and individuals may act to mitigate disaster risks or, in response to climate change, adapt to risks, in accordance with their capacities but also their knowledge and values (Romero Lankao and Qin 2011; Ford 2002)⁶. Finally, although a major claim for impacts-based assessments is their ability to highlight how hazard parameters will change into the future, critics within the climate change adaptation field have pointed out that the nature of risk modelled into the future is subject to major uncertainty (Moench, Tyler, and Lage 2011; Boyd et al. 2009). These uncertainties are compounded at the city-scale because of the difficulties in downscaling Global Circulation Models to provide localised data relevant to urban centres and communities (Moench, Tyler, and Lage 2011)⁷.

ii. Down on the ground: Social vulnerability approaches

⁶ One caveat to this might be more complex forms of this type of analysis – such as that operationalized in the recent World Bank Urban Risk Assessment Framework – which add an ingredient of institutional analysis as a measure of how well prepared a city is to respond to risks (Dickson et al. 2010). However, the institutional analysis tends again to be static, and often limited to the capacities of risk management institutions, neglecting the broader development context and processes (Adger 2006).

⁷ In addition, Ford argues that exposure-based approaches overemphasise extreme events and neglect day-to-day processes (Ford 2002).

The concept of social vulnerability, as mentioned, provides a different entry point into these issues. It has roots, first, in a more radical tradition of disasters research indebted to scholarship in political ecology that sought to show that although physical events might be ‘natural’ processes, disasters were inherently man-made. Second, in poverty research that stressed that events such as famines were not environmentally but socially and politically-determined. Vulnerability theorists in this vein therefore see climate-related disasters as the product not only of physical phenomena but also social, economic and political processes that leave particular populations physically exposed and economically and socially sensitive to such events (Blaikie et al. 1994; Brooks 2003; Adger 2006; Pelling 2003). These structural processes or ‘root causes’ are embedded in a system independent of hazard events. The critical aspect of vulnerability analysis for Ribot is that it accounts for causality, as knowing what vulnerability is a function of does not tell us why it occurs (Ribot 1995). In this way, “Vulnerability analysis turns impact analysis on its head by examining the multiple causes of critical outcomes rather than the multiple outcomes of a single event.” (p.119) (ibid.).

Whilst the diverse traditions of this approach to risk have overlapped, different strands have emerged which will be critically discussed throughout the rest of the chapter. These ‘group’ in urban studies around: first, household-based livelihoods studies (such as Moser’s assets-based approach but also Pelling’s socio-political asset analysis); second, structural-entitlements approaches (which seek to understand the distribution of entitlements through the economic, political and social structures operating at higher scales, codified into a general ‘Pressure and Release Model’ of disasters by Blaikie et al. and applied in cities by Pelling); and, third, related studies concerned with the role of urban governance discourses in influencing entitlements and vulnerabilities (drawing on a post-structuralist concern with discourse and knowledge). These schools of approach move from a concern with the material aspects of what people have and do and how particular social groups might be more or less vulnerable, to one that is distinctly more relational, in which, as Bankoff et al. argue for vulnerability analysis more generally⁸: “Vulnerability is not a property [*or*

⁸ This form of conceptual shift is also advocated in some contemporary thinking on adaptation to climate risk (although again without explicit expression in urban debates): “While existing asset-based approaches are helpful in identifying the resources that are available to a system - be it at the individual, community or national levels - in coping with and adapting to a changing external

the stock] of social groups or individuals [*and one might add households*], but is embedded in complex social relations and processes [*the flow*].” (p.5)(Bankoff and Hilhorst 2006)

This point is developed in the remainder of the chapter.

An over-arching tension within these strands of study concerns their potential to be integrative of the biophysical and social dimensions of risk⁹. For authors such as Romero Lankao and Qin, examining the operational uses of different approaches, social vulnerability specifies the ‘who and why’ of risk, whereas hazards-based research forms the basis for the ‘what, when and where’ (Romero Lankao and Qin 2011). The natural conclusion from this is therefore that the two broad approaches need to be integrated. However, other authors conclude that existing vulnerability frameworks can account for both aspects, although they disagree about how. Adger, for example, argues that Blaikie et al.’s Pressure and Release Model (in the political/human ecology tradition of disaster studies scholarship) brings together the biophysical and the social elements in ways that livelihood studies (derived from entitlements theory in poverty and development research) do not (Adger 2006). However, Forsyth argues that the Pressure and Release model presents a linear model for understanding the relationship (in which social forces act upon a ‘natural’ event), whereas the ‘Access model’, in the livelihoods tradition, provides a much better account of the ways in which natural and social processes are mutually, and iteratively, constructed (Forsyth 2003)¹⁰.

In addition, I develop the argument in the sections below that livelihoods-based research has more to offer over-arching debates about risk and vulnerability than some authors have acknowledged. Whereas Romero and Qin exclude vulnerability research from the potential to engage with the ‘what, when and where’ of risk, Section 2.4.i takes forward debates about how livelihoods approaches may be used to specify locally-based experiences of risk (Romero Lankao and Qin 2011). In the same vein, Adger argues that a major challenge to existing vulnerability research is

environment, they do not give sufficient recognition to the processes and functions that are so imperative to supporting adaptive capacity at the local level.” (p.3) (Jones 2011)

⁹ As Brooks notes, the nature of the hazard affects vulnerability: housing quality is an important determinant of vulnerability to flooding or windstorms, for instance, but less likely to be a determinant of vulnerability to drought (Brooks 2003).

¹⁰ Although the model is avowedly economic, focussing on material resources at the household scale.

to incorporate such perceptual elements, and also institutional and governance issues (Adger 2006). Again, his analysis rests on a particular view of the conceptual underpinnings of livelihoods approaches (as centred on the analysis of capital assets) which, I argue below, when re-thought may provide more scope for engaging with these important issues.

Before further developing an analysis of how to further these approaches in the context of urban informality, I briefly review vulnerability approaches in the context of resilience approaches, which have become a key tool for assessing, analysing and catalysing climate change adaptation in particular.

iii. A systems approach: urban resilience and vulnerability

Resilience-based theory (beyond simply the notion of resilience to mean the antonym of vulnerability, or capacity to cope and recover from climate-related shocks) offers a way forward in thinking about ‘coupled human-ecological’ or ‘socio-ecological systems’ to explain the complex interdependence of the physical and social elements (Miller et al. 2010). Although theories in this tradition have little application so far in urban contexts, in part due to the complexity of urban systems, some attempts are being made to use resilience theory to capture the wide sets of risks and opportunities for response in urban areas (Romero Lankao and Qin 2011; Moench, Tyler, and Lage 2011). Adger stresses how there are common elements of vulnerability and resilience research, in their emphasis on the shocks and stress experienced by a system, the response and the capacity for adaptive action (Adger 2006).

The context of this research, however, did not lend itself well to the adoption of a resilience-based lens. Firstly, the specific focus on informal urban settlements does not lead to easy definition as a socio-ecological system, focussing as it does on part of the city whole and given that it is defined by its particular socio-political dimensions. In addition, resilience theory – in current formulations – lacks an explicit consideration of poverty-related issues and reduction which is, on the other hand, a key concern for social vulnerability analysts (Béné et al. 2012). Secondly, in asking about how states control for risk and vulnerability in informal areas, the project demanded a focus on actors, agency, the role of meaning in driving agency and related power issues and power structures, issues not well integrated into notions

of resilience (Romero Lankao and Qin 2011; Béné et al. 2012; Miller et al. 2010; Pelling 2011). Finally, resilience theory uses fixed conceptions of physical risk, whereas particular vulnerability approaches allow us to open up the multiple ways in which actors experience risk, and use risk definitions in social and political processes (Rebotier 2012).

The next three sections now develop the argument for extending existing social vulnerability approaches to urban risk. The following section, 2.3, examines the genesis and application of such approaches in livelihoods research.

2.3 Livelihoods approaches to urban social vulnerability

Livelihoods approaches have been put forward as both a conceptual vehicle and operationalisable framework for understanding social vulnerability in both the contexts of urban disasters and climate change. Drawing on Sen's development of the concepts of entitlements and capabilities as ways of thinking about poverty and food security (discussed further below), these approaches reflect a historical shift in poverty debates. First, away from income as the sole measure of poverty to a multi-dimensional approach that captures the different ways in which people hold wealth; second, towards an approach that values people's own experience and perceptions; and third, as an approach acknowledges their capabilities, or capacities to manage their own assets (Sen 1984; Moser 1998; Pelling 2003; Scoones 2009; Batterbury 2011).

However, livelihoods research is an inter-disciplinary endeavour and a broad camp. This section (and the following, section 2.4) discuss how existing approaches to urban risk sit within different traditions of the livelihoods approach, and argue for the need to bring new perspectives from debates about livelihoods into the analysis of climate risk. Scoones outlines how livelihoods perspectives informed the particular development of the Sustainable Livelihoods approach and then a policy framework. This approach and framework provided the most often used definition of sustainable livelihood as "the capabilities, assets...and activities for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base" (Chambers and Conway 1992, in Scoones 2009 p.175). At the heart of the framework lay an operational model in which the resource base of

households – their ‘capitals’ or assets – was linked to their strategies, influencing poverty outcomes. Assets were treated as equivalent and as substitutable for each other. However, as Scoones notes:

Other work on sustainable livelihoods had emphasised other features. For example, the IDS studies [*relating to environmental entitlements, discussed further below*] stressed in particular the idea of institutions and organisations as mediating livelihood strategies and pathways. These were socio-cultural and political processes which explained how and why diverse asset inputs linked to strategies and outcomes. They were subject to power and politics and were where questions of rights, access and governance were centred. Thus a different explanatory angle, with a different disciplinary emphasis, was being offered within the same framework, one that emphasised complex processes requiring in-depth qualitative understandings of power, politics and institutions... (p.178, Scoones 2009).

Work on urban climate risk has built on urban applications of the sustainable livelihoods framework, and its central idea of understanding the assets base or ‘capitals’ available to households (Moser 1998). While the original approach and framework derived from rural contexts, work in poor urban settings stresses that the model of livelihoods ‘system’ that governs the salience of particular assets reflects a highly monetised economy where households depend more starkly than rural households on their labour, their housing (as an asset for rental or enterprise) and (related) financial ‘capital’, social capital and less directly on natural resources (although land for housing may also be considered a critical ‘natural’ capital, see (Moser 1998; Moser and Satterthwaite 2008; Pelling 2003). ‘Assets livelihoods’ approaches to urban risk are strongly rooted in this framework and its application to vulnerability to shocks (see Moser’s Assets-Vulnerability Framework of 1998). More recently, they have given rise to new frameworks for understanding risks to climate change in the form of Moser’s assets-based adaptation framework (which seeks to support the protection and accumulation of household assets by different actors at different phases of a disaster cycle, both pre and post) (Moser and Satterthwaite 2008) and the related participatory climate change adaptation appraisal (through which communities diagnose the impacts of climate-related events on household assets and strategies) (Moser et al. 2010; Moser 2011). The central focus of this work is on mapping household (and community) assets, their interchangeability and their measurement.

A key component of the assets livelihood framework is a focus not only on the initial assets that people ‘hold’ but also, as mentioned, the ways in which people are managers of their own assets, their strategies and their capacity to build on and protect what they have (Moser 1998). This processual element of assets livelihoods approaches distinguishes between coping, as a short-term response to a shock or hazard, and adaptation as a longer-term process of adjustment (Pelling 2003; Moser 1998). In the context of growing debates about climate risk in low-income urban areas, numerous studies have concentrated on describing this coping or adaptation aspect, which Roy et al. helpfully separate out into practises related to the built environment (with many studies highlighting the centrality of housing construction and modifying housing structures and features (as a critical asset) to household responses to climate-related hazards), socio-economic practices (livelihoods diversification, storage, building financial capital through savings, loans or relief funds, and the use of local social networks (to provide financial support or temporary shelter where houses are inundated or damaged¹¹) and mobilisation and political action (Moser et al. 2010; Wamsler 2007; Jabeen, Johnson, and Allen 2010; Douglas et al. 2008; Braun and Abheuer 2011; Roy, Hulme, and Jahan 2013). The treatment of these latter social and political dimensions is discussed further below.

In addition, although livelihoods approaches do not define vulnerability solely by social grouping, as is sometimes the case for forms of ‘taxonomic’ approach to vulnerability discussed in the section above, such studies do often link particular types of coping behaviour to particular social groups highlighting how women, children and elderly groups for instance may be more vulnerable as a result (Moser and Satterthwaite 2008). In addition, the socio-economic status of households, tenure status and length of time in residence also emerge as important characteristics determining asset-related behaviour: with studies suggesting that the time and financial costs of coping are too great for some households, that renters or those with less tenure security are less likely to undertake building modifications than owners,

¹¹ Although one study in Bangladesh reports that the ability to diversify is actually severely constrained (Roy, Hulme, and Jahan 2013).

and that older communities may develop stronger social networks¹² (Pelling 1997; Pelling 2003; Moser and Satterthwaite 2008; Baker 2012; Chatterjee 2010).

The following sections, however, seek to develop our thinking about urban social vulnerability to climate risk beyond the more descriptive analysis of assets frameworks, with their focus on what households have and what they do as a key predictor of vulnerability. Whilst acknowledging the importance of these facets of urban life to social vulnerability, I outline how analytic approaches focussed more heavily on contested interpretations of risk, and, in line with the broader approach to sustainable livelihoods set out by Scoones, the non-material and structural dimensions of livelihoods might be brought to bear on social vulnerability analysis in conditions of urban informality.

2.4 Developing livelihoods-based approaches to social vulnerability analysis in the context of urban informality and risk

This section examines four dimensions to debates about livelihoods, arguing that insights from these debates can shape a new approach to understanding the vulnerability of informal, urban settlements. These are: using livelihoods approaches to environmental risk, debates about the social embeddedness of livelihoods, conceptualising access and entitlements, and the role of political institutions and agency.

i. Using livelihoods approaches to define local experiences of risk

As Scoones outlines, the development of the sustainable livelihoods framework narrowed the focus of livelihoods perspectives (Scoones 2009). This narrower focus, Forsyth argues, is reflected in policy and analytic work on environmental risk using a livelihoods approach. Here there is a tendency to ‘add’ a discussion of livelihoods “on top of pre-existing notions of environmental risk, rather than being a way to specify this risk using the perspectives of vulnerable people” (p.95) (Forsyth 2007). Forsyth shows how some applications of livelihoods approaches have been used to suggest new forms of livelihood activity (such as resettlement or diversification) in

¹² Researchers have also noted how tenure insecurity may lead to greater mobility, which impedes community-based responses (see Roy, Hulme, and Jahan 2013). However, home owners in the same study also reported limitations on their investments in their built environment due to the fear of eviction and informal development controls.

response to a presumed ‘known’ risk, rather than examining how risks and livelihoods strategies are linked by people themselves.

Instead, Forsyth argues that a more flexible use of livelihoods frameworks, that allows people to specify how they experience climate-related risks, and their understandings of the causes of these risks, may be more socially meaningful and lead to more appropriate solutions (Forsyth 2007; Hinshelwood 2003). In more conceptual terms this implies avoiding pre-specifying relationships between livelihoods assets, outcomes and strategies and the policy and institutional context in which such livelihoods activities take place. In application, this implies allowing poor groups to fully specify how they view environmental problems, as well as how they themselves use resources to reduce vulnerability. This can be revealing about the causes of environmental risk, the potential for and variations in adaptive responses, and the ways in which proposed interventions may actually work against livelihoods (Forsyth 2007). In the context of adaptation to climate change, Forsyth and Evans stress the need to ask ‘what’ is being adapted to (i.e. the experience of risk), ‘who’ adapts (what are the socio-economic barriers to adaptation) and ‘how’ do these actions reduce vulnerability (Forsyth and Evans 2013). The ways in which the poorest adapt, they argue, “is not always to environmental or climate change risk alone, but to what these changes mean for livelihoods” (p.3, Forsyth and Evans 2013).

In the context of urban climate risk, it could be argued that the tendency to ‘fix’ external views of risk is evident in livelihoods studies which, although rooted in local social contexts, use external (climate or hazard) models as the only way of specifying what the risks might be, and/or measure people’s experience of risk solely against their recognition of risks as derived from those models¹³. Moser et al.’s participatory study, for example, is indeed inductive in many senses, but it remains focussed on climate change (or at least present climate variability) as the sole shock or stressor affecting households, with little discussion of wider sets of risks. In addition, in highlighting what actions people do take to cope with risk, the analysis

¹³ Indeed, the dominance of this approach more generally in urban climate change adaptation debates (especially given the prominence of impacts-based approaches) led UN Habitat’s recent global review report of climate change issues in cities to conclude: “Many discussions of climate change adaptation start with a discussion of the risks that climate change is bringing or may bring and then consider what needs to be done to address this – without considering how the climate change-related risks fit within other risks.” (p.149)(UN Habitat 2011)

runs the risk of obscuring a discussion around individuals or households who neither act on climate-related events nor perceive climate risk to be a problem in the same way (in fact these people are said to bias the data, when they may actually be an important part of the data) (Moser 2011; Moser et al. 2010).

The second part of this section looks to related issues of how livelihoods approaches might be better conceptualised to account for the non-material and contextual dimensions of urban livelihoods, and how these approaches might be applied in the context of debates about urban risk.

ii. Towards a socially-embedded approach to livelihoods and vulnerability

Echoing the broader sense of sustainable livelihoods set out by Scoones, recent scholarship debating the conceptualisation and analysis of livelihoods moves away from a more instrumental ‘assets livelihoods’ approach and emphasises the networks of meaning and power within which livelihoods decisions are embedded, and the social and institutional contexts that frame this (van Dijk 2011; Haan and Zoomers 2005; Arce 2003; Scoones 2009). Such a view re-emphasises the structural factors that influence livelihoods practices and outcomes, away from fully agent-centred applications of assets approaches (which assume that households have total control over the allocation and exchange of assets). While Moser and Satterthwaite, writing directly about urban vulnerability to climate risks, acknowledge the need to move beyond analysis that focusses on well-established categories of capital assets, they do not explore how we might do this (Moser and Satterthwaite 2008). According to authors critical of an assets-based focus, not only are such aspects of livelihoods not readily captured in existing sets of capital assets, but they cannot by nature be reduced to a ‘fixed asset’ component (and thereby simply reinserted as ‘political capital’ or other forms of less tangible ‘capitals’)¹⁴. Instead, authors such as Kaag et al. suggest that livelihoods studies should be underpinned by:

a *processual* perspective that puts people and their actions at the centre of the analysis but that at the same time considers these actions as the result and the constituent of broader and longer-term processes....from this perspective livelihood practices are seen as embedded actions and livelihoods is considered more a process than a system. (p.5) (Kaag, M. et al. 2003)

¹⁴ Indeed, some authors object to the use of ‘capitals’ on ideological grounds, as reflecting a neo-liberal project (Arce 2003). Van Dijk differentiates ‘capitals’ as something of value that is ownable, from assets, which are also claimable, and resources, which do not require ownership but which one can have knowledge of and access to (the broadest term of the three) (van Dijk 2011).

As Scoones argues further, this processual perspective is underpinned by the simultaneous analysis of structure and agency, or the “recursive links” that occur across scales between structural conditions and human activities (p.186, Scoones 2009).

In the urban context, this more ‘relational’ approach is advocated by a number of scholars of urban poverty and vulnerability who highlight how urban livelihoods are constructed through relationships of access to broader sets of institutions, relying on the provision of collective infrastructure and services which are also critical to the occurrence and magnitude of hazards and vulnerability (Hendriks 2011; Moser et al. 2010). Pelling and High identify access and social capital – both relational in nature – as the most critical dimensions of urban vulnerability (Pelling and High 2005). The conceptualisation of access relations is discussed in the next section. In analysing social relations, Pelling’s study of the formation of social organisation across three low-income urban contexts moves forward from the ‘Assets-Vulnerability’ framework in the specific context of urban vulnerability to disaster risk (Pelling 2003). Although indebted to this framework – and concerned to measure the strength of social ‘assets’ – he highlights, in contrast to the universal rational-actor model of the assets-based approach, that the formation of social capital is deeply historically and contextually contingent. Social resources may be drawn upon in different ways, with ‘latent’ social norms and trust realised informally or formally under particular circumstances. Critically, Pelling opens up the concept of social capital to consider how the politics of different states can build or erode patterns of social association in ways that affect vulnerability. For example, social organisations may be co-opted or maintained in dependent and clientilistic relationships by political regimes in ways that limit the engagement and the flow of opportunities for the most vulnerable households in particular communities (ibid.).

Pelling’s work echoes long-standing debates about social capital that have focussed on whether a measurable, instrumental application of the term fails to address the social and institutional context – and attendant power relations – within which social norms and networks are forged and transformed (Cleaver 2005; Fine 2010). Social capital is shaped by the political trajectory, not simply the other way round, as implied in Putnam’s original work on social capital (the inspiration for more apolitical and instrumental approaches) which associated increased levels of social

capital with better governance and development. Implicitly, the argument of this work reflects the broader critiques of instrumental approaches to social capital levelled by authors such as Fine, namely that their focus on strengthening horizontal social ties obscures the importance of securing powerful ‘vertical’ ties, and the ways in which forging such ties depends on pre-existing power relations and differentials (Fine 2010).

In addition, although insights as to the hermeneutic dimensions of urban livelihoods are found in anthropological studies of urban life (Holston 1991; Zeiderman 2013), this has received little attention in scholarship that takes a livelihoods perspective on urban risk. Yet analysis of the hermeneutic dimensions of people’s activities has a relatively long pedigree in livelihoods-oriented research. Authors such as Bebbington have sought to show how livelihoods are shaped by the non-material as well as material aspects of livelihoods-related behaviour (Bebbington 1999). For example, these entail particular cultural practices which are related to the forms of livelihood in a particular place (so, in rural areas in the Andes practices such as coming together for fiestas are both enabled and constrained by the patterns of presence and absence of people due to their livelihoods and out-migration) but constitute a distinct dimension of livelihoods (ibid.). They may foster or inhibit the development of social norms and networks but they are not in themselves the same thing (ibid.). Hinshelwood, whilst retaining the Sustainable Livelihoods framework as a heuristic device for analysis, stresses not the material role of livelihoods assets in explaining public reactions to the uptake of new technologies, but the role of perceptions of livelihoods threats or opportunities (Hinshelwood 2003). Arce shows how contestations over livelihoods diversification projects in Bolivia could only be explained by understanding the value of coca production to different groups, a hermeneutic dimension to livelihoods not captured by existing Sustainable Livelihoods approaches (Arce 2003).

A critical underlying implication of the work of van Dijk and de Haan and Zoomers in particular is that, to fully understand livelihoods-related processes, analysts need to engage, firstly, with how households make decisions (beyond describing what they do), which entails, secondly, ‘breaking open’ possible a priori assumptions about how households and social groups function. De Haan and Zoomers discuss how to allow for the fact that households engage in ‘non-strategic’ as well as

‘strategic’ behaviour, which assumes that households react rationally in response to given opportunities or constraints according to certain pre-set motivations or objectives (Haan and Zoomers 2005). Doing so involves recognising the role of relationships, including power relationships, between household members, but also that household activities may be highly diversified and conducted across multiple locations (ibid.). This raises questions about what is actually strategic, and for whom. In addition, de Haan and Zoomers note how – by starting with the open question of how decisions are made and for whom – we might avoid automatic labelling of the interests of pre-defined social groups (on the basis, for example, of age or gender), presumably coming instead to a more contextually-defined idea of how these categories might be relevant to livelihoods-related processes.

The following sections build on this section, examining over-lapping debates about access and entitlements and politics and governance, and the potential to bring new perspectives on these themes into existing approaches to urban risk and vulnerability.

iii. The institutional dimensions of livelihoods: conceptualising access and entitlements

This section analyses over-lapping debates about access and entitlement relations and their role in shaping social vulnerability to risk in urban areas. Three key issues arise for discussion: first, how to conceptualise access in the context of debates about more holistic livelihoods approaches; second, how we view access in the context of different approaches to institutional entitlements and, finally, access in the context of debates about political society and agency as well as social empowerment. The first two are discussed in this section, and the final issue as a subsequent section.

With asset-centred accounts of livelihoods coming to dominate livelihoods studies, de Haan and Zoomers demand that livelihoods analysts give greater weight to the issue of institutional access as the ‘sine qua non’ of understanding how household resources are leveraged, maintained and transformed (Haan and Zoomers 2005). This echoes earlier livelihoods work that advocates the treatment of access on a par with or prior to assets as a ‘resource’ in itself (Bebbington 1999). In the disaster risk field, the ‘access’ model was developed in parallel to livelihoods work to explain the social causes of vulnerability (Blaikie et al. 1994). Certainly, an important strand of the urban climate risk literature addresses the issue of access to networks and institutions in relation to vulnerability, but primarily as a function of assets. In line

with Sen and Bebbington, who point to the role that human capital and other assets play in the ability to change the rules that structure distributions of assets, Moser links the asset portfolios of households to their ability to make demands on local government, and thereby reduce vulnerability (Bebbington 1999; Ribot 2009; Moser and Satterthwaite 2008). Pelling's analysis, as discussed, highlights how social resources determine how people join together to prepare for and cope with climate-related events (through community drainage clearance, for example) and also shape how people are able (or unable) to press claims on the state in ways that affect their vulnerability (for disaster relief, for example)(Pelling 2003). Both Pelling and Moser stress that the ability to take these forms of collective action is unevenly distributed across households, with urban households with very low overall asset levels often unable to spare the time or resources to participate or reciprocate (Pelling 2003; Moser and Satterthwaite 2008).

While asset levels may certainly influence people's ability to access key resources through institutions, a more holistic livelihoods-based approach stresses how access is not simply a 'condition' but a 'relation' so, for example, a woman's ability to access particular markets depends on the social structures that govern her access (van Dijk 2011; Haan and Zoomers 2005). Therefore, "Access is shaped by institutions; at the same time, these institutions are repeatedly confirmed and reshaped by livelihoods" (p.35)(Haan and Zoomers 2005).

Relationships governing access are deeply embedded in relationships of power between different actors (Haan and Zoomers 2005; Ribot and Peluso 2003). Access analysis is therefore, according to Ribot and Peluso, about mapping the 'constellation' of means, relations and processes and underlying power relations that enable various actors to derive benefits from resources (Ribot and Peluso 2003).

Access relationships are also underpinned by the rules and conditions of sets of institutional *entitlements*. This move to seeing livelihoods as a function of an absence of entitlements, rather than simply a 'condition' of poverty, is key, for authors such as van Dijk, to reconceptualising livelihoods in ways that are more comprehensive and socially grounded (van Dijk 2011). Based on Sen's original theory of entitlements, which marked a move away from 'environmental determinism' in explaining famines to a conception that emphasised that the

processes that governed one's ability to command food were more important drivers than food or resource availability in itself (Pelling 2003; Dreze and Sen 1989; Sen 1984), entitlements theory situates "a disaggregated (or 'micro') analysis of the distinctive positions and vulnerabilities of particular [social actors] in relation to the 'macro' structural conditions of the prevalent political economy" (Jenkins, 1997, p. 2 in Leach et al. 1997). In doing so, entitlements-based thinking draws out the causal factors that structure household vulnerabilities at multiple scales (Watts 2005; Ribot 2009).

In work parallel to that on sustainable livelihoods, Leach et al. (1997) propose a revised entitlements framework to counter the perceived narrowness of Sen's original theory (with the revised theory used by Adger and Kelly in relation to vulnerability analysis (Adger and Kelly 1999)). This environmental entitlements framework recognises the importance of informal institutional processes such as social and cultural norms as well as formally-sanctioned ones in governing entitlements. The approach seeks dynamic explanations, which further recognise the role of power and debates about social meaning as well as material resources in negotiations over entitlements. Certain sets of claims may be contested by counter-claims made by other actors, for example when hunters are banned from hunting in a nature reserve by state law but continue on the basis of customary rights they view as legitimate (ibid.)¹⁵. This suggests the need to understand the degree to which different people can influence decisions about endowments and entitlements (Leach, Mearns, and Scoones 1999). It also stresses the importance of sets of entitlements, rather than a single relationship, in governing outcomes (Leach, Mearns, and Scoones 1997). Ultimately, Leach et al.'s framework rests on a disciplinary understanding of institutions and institutional change that allows us to view institutional processes that transform (or map) entitlements as socially constructed, not just individually allocated. It provides a much more politicised account of entitlements processes than that contained in Sen's original theory, which has also been critiqued within contemporary scholarship on famine occurrence for neglecting considerations of how different actors wield power and the role of political

¹⁵ Although Bebbington helpfully reminds us that co-operation as well as conflict is important to entitlements distributions (Bebbington 1999). Other authors add that the way in which people negotiate these relationships may not in fact be so clear-cut, entailing, for example, trade-offs between powerful patronage and one's own freedom (van Dijk 2011).

marginalisation, including the absence of formal rights, for certain groups (Devereux 2001; Keen 2008).

Accounts of urban vulnerability to disaster and climate risk to date draw on a number of developments in entitlements theory and its application in the hazards literature. Pelling operationalizes the idea developed in Blaikie et al.'s 'Pressure and Release' Model of the chains of causality that structure vulnerabilities to hazards in cities, through changes in political economy and in political regime (Pelling 1999; Pelling 2003). He therefore shows how the forces shaping vulnerabilities in low income urban settlements relate to historical patterns of power distribution which may enable or limit the empowerment of poor households to take collective action to reduce their vulnerability to disaster risk (ibid.).

Other authors stress not only the institutional structures and rules that lead to vulnerability, but the role of discourses and social labelling (key aspects, according to van Dijk, of socially-embedded ways of conceptualising institutions and livelihoods (van Dijk 2011). These studies highlight how predominant framings of disaster present it as a natural event to be managed through technical solutions, the consequence of which is that the socio-political and structural processes underpinning the construction of vulnerabilities are hidden and not acted upon (Pelling 1999; Aragon-Durand 2007; Rebotier 2012; Mustafa 2005). Underpinning these discourses concerning causes are related discursive constructions around whose responsibility it is to act on what (Aragon-Durand 2007; Rebotier 2012). This may be accompanied by social labelling through which inhabitants are seen as irresponsible or 'bad' in contributing to the proximate causes of disaster, for example, by dumping rubbish which clogs up drainage systems or settling in 'unsuitable' sites (Pelling 1999; Moser and Satterthwaite 2008). These types of discourses are not only rhetorical in nature but are performative, in that they 'do' things in the world (Rebotier 2012), and can serve to limit the entitlements urban households can claim for the effective management of their vulnerability. In turn, this theoretical 'turn' in disaster risk research allows us to see how dominant constructions may also be contested and resisted on the basis of different meanings. This point is taken up in the following section and in greater depth in the next chapter on societal responses to risk assessment.

Two points for discussion follow to close this section. The first is to note that although urban vulnerability theorists have been increasingly concerned with the role of forms of knowledge and meaning in the construction of risk and vulnerability (and therefore conceptualising risk not just as an outcome of social and biophysical processes, but also as a driver of these processes (Rebotier 2012), they have little touched on intrinsic questions about the role and nature of expertise in these processes, the process of constructing knowledge, and how it is harnessed to and influenced by state policy and practice. How these questions are addressed by scholars of risk and what conceptual tools to use to do so are questions explored in their own right in the next chapter.

The second point concerns how we understand the influence of the ways in which urban livelihoods are constructed on the processes that govern vulnerability, as well as vice versa, or the ways in which the socio-economic basis and practices of people's livelihoods relate to issues of access and institutional entitlement. Pelling's analysis adopts this perspective for the critical dimension of social capital, but he himself notes the need to examine in the urban context "the ways in which livelihoods [referring to a broader set of household assets] are linked with the social and political aspects of adaptive potential and vulnerability / resilience" (p.181)(Pelling 2003)¹⁶ – to which, in line with the analysis above, we might add in their non-material as well as material dimensions. The following section turns to analyse the political aspects that frame, and are framed by, livelihoods practices.

iv. From social to political vulnerability

A central critique of livelihoods studies to date has been their 'de-politicisation', or that livelihoods analysts had failed to address issues of politics and governance (Haan and Zoomers 2005; Hendriks 2011; Moser and Norton 2001).

Examining the political as a distinct domain, it is argued, furthers debates around social capital by according an explicit role to political empowerment, the links with the politics of democratisation and allows for consideration of a wider range of actors and strategies (Hickey 2009). The argument has acquired particular salience in informal urban contexts with the work of Partha Chatterjee, who points out a

¹⁶ This echoes a point made by Slater about the tendencies of urban governance research, which are to focus solely on the socio-political dimension without understanding how wider sets of livelihoods dynamics – relating to employment, housing, etc. – play out in the political arena (Slater & Twyman 2003).

distinction between civil society – as the formal domain of engagement by citizens with the state – and political society, or the world of informal negotiation between those without full rights in the eyes of the state and their political contacts (what Corbridge et al. refer to as the “loose community of recognised political parties and their operatives, local political brokers and councillors and perhaps even lower-level public servants who depend upon the grace and favour of politicians” (p.189)(Corbridge et al. 2005). This engenders specific forms of political agency and relies on particular institutional framings of such population groups (Chatterjee 2010; van Dijk 2011). Related dynamics (clientelism, factional politics) are noted in the context of urban vulnerability to disaster risk by Pelling (Pelling 1999; Pelling 2003), but are not rooted necessarily in Chatterjee’s distinction between the politics of formality and informality, and are not taken up in Pelling’s formal analysis, which focusses on the role and formation of disaster reduction-focussed civil society organisations.

Nevertheless, debates about these political dynamics mirror those discussed above, turning on whether voluntaristic rational actor approaches (such as the insertion of political ‘capital’ into livelihoods frameworks (Baumann 2000)) are adequate to capture the relational dimensions of such dynamics, and their embeddedness in particular fields of power relations. In the context of these debates, both Hickey, in the broader context of development, and van Dijk, in relation to livelihoods approaches more specifically, reach for the framework of political ‘space’ in order to articulate how the institutional and discursive dimensions of policy and the socio-political practices of poor groups come together to influence poverty and inequality, overturning the tendencies of voluntaristic approaches to imply that the achievement of particular goals can be ‘read off’ the strategic activities that people are able to engage in (Hickey 2009; van Dijk 2011)¹⁷.

This specific focus on the ‘political’ has also invited criticism from scholars who have argued that the concept overstates the distinction between social and political ‘capital’ and civil and political society (Corbridge et al. 2005), and assigns to urban informal life a set of dynamics that are present across multiple areas and social strata

¹⁷ Although Hickey notes, resonating a theme of this and the following chapter, that such an approach neglects a focus on the institutional practices of the state and consideration of the links between agency and identity (Hickey 2009).

of societies worldwide (Roy 2011; Corbridge et al. 2005). Corbridge et al. instead argue that such practices “can more reasonably be thought of as a set of interlocking political practices that are arranged along a continuum” (p.214)(Corbridge et al. 2005). The formal practices of ‘civil society’ are, in essence, intertwined with the dynamics of the ‘political’ (ibid.). In this context, the term ‘socio-political’ assets, referred to by Pelling, may be more apt to describe the forms of resources poor groups draw on to reshape their vulnerability (Pelling 2003).

2.5 Conclusion: ways forward for urban social vulnerability research in informal urban settlements

This chapter has argued for a number of ways in which research on urban climate risk, and especially that exploring the nature and impacts of risk in informal urban settlements, might be advanced. First, it argued for the ongoing importance of social vulnerability approaches to urban risk, highlighting the weaknesses of the dominant impacts-based paradigm. Taking social vulnerability analysis as the starting point through which we might further understand the processes driving urban risk, I have nevertheless suggested that approaches in this tradition should be extended. In particular, I have argued that insights from broader livelihoods-related debates can usefully be brought to bear on the analysis of urban climate risk.

The chapter concludes that the assets-based operational frameworks proposed by Moser and others for understanding vulnerability need to be re-framed to better account for local perspectives on risk (the ‘what’ of risk) and the nature of household agency, including the possible role of meaning, identity and cultural practice in relation to that agency. In addition, the chapter has advocated a move to a more relational approach that demonstrates how livelihoods are embedded in dynamic, social relationships influenced by underlying power relations. It also argued for a stronger emphasis on the institutional context shaping social relationships at different scales and the role of access to institutional resources to protect against risks. Pelling provides one account of urban vulnerability to risk from a livelihoods/entitlements perspective that relates the formation of social assets to the institutional context, highlighting how contingent, socially and politically embedded and historically determined such processes are. Extending from this contribution, however, I suggest the need for research that takes a broader view of livelihoods practices, their material and non-material dimensions, and situates them more

specifically in the political and institutional dynamics of urban informality (including engagements with debates about the role of ‘political society’).

The chapter also notes that while urban vulnerability analysis has moved to accommodate the discursive as well as the structural forces shaping entitlements, it has lacked a specific focus on access and entitlement relations at the scale of urban governance. There has been little theoretical engagement with the question of how urban states govern in informal settlements, the policies and practices by which they do and the knowledge and expertise that underpins risk governance. It is to understanding these issues that the next theoretical chapter turns. Chapter 4 then outlines how new methods are needed for new approaches to urban vulnerability, and Chapters 5-7 present the findings of the empirical work.

Chapter 3

The State and the Politics of Urban Climate Risk

3.1 Introduction

In Chapter 1 I introduced two central research questions to advance the study of the impacts of climate-related risk in conditions of urban poverty and informality. To summarise: Firstly, do existing approaches to climate-related risk and vulnerability need rethinking in such contexts and, if so, how? Secondly, how do states control for such risk and vulnerability in informal urban settlements?

To this end, the previous chapter (Chapter 2) critically examined existing models of risk and vulnerability and their application in urban areas. It explored how theorists of risk as social vulnerability have sought to overturn, or at least provide a counterpoint to, predominant physically-based explanations of risk. Drawing on new currents in livelihoods and entitlements research (as underpinning social vulnerability theories), and debates about the political and socio-economic processes underlying urban informality and poverty, the chapter then outlined how new analytic and methodological approaches might be brought to bear on the challenge of understanding social vulnerability to climate-related risk in conditions of urban informality. The chapter concluded, however by acknowledging that two important concerns remained largely unaddressed: a critical lens on the construction of knowledge about risk and (relatedly) a more substantive conceptual treatment of the workings and practices of the state and societal responses to it.

This chapter takes up these issues through a different conceptual frame. Again, against existing impacts-based approaches to risk, it takes as its starting point the idea that risk is socially and politically embedded. However, this chapter anchors this assertion in thought arising from Science and Technology Studies (STS), owing to its concern with the constitution of knowledge in risk assessment. Science studies and science policy analysts¹⁸ have long noted that the spheres of science and politics, expertise and government, are not easily separated (Forsyth 2003), and that there are real world ramifications from treating them as such. The adoption of science insensitive to the social and political conditions in which it is embedded may

¹⁸ Science studies uses the philosophy and sociology of science to look at the context in which environmental science is produced whilst Science policy examines the co-evolution of scientific and political norms within policy.

undermine the ability to address the biophysical causes of (in this case) environmental risk, as well as result in policies that end up undermining the livelihoods of users of a particular environment and potentially end up increasing local vulnerabilities to risk (Hess 1997). The idea of risk as fixed and neutral, standing outside social and political relations, is not only a misnomer, but potentially damaging¹⁹. In turn, sociologists of scientific knowledge highlight that the manner in which risk is experienced by people does not simply reflect the fact of the ‘physical’ risk alone, but is a response to the ways in which official definitions of risk carry particular social and political assumptions and engender particular relationships with expertise (discussed further below). Indeed, Wynne, a classic proponent of this argument, suggests that responses to risk should therefore be understood in relation to this ‘identity risk’ rather than simply to risks ‘out there’ (see Wynne 1996 and Part 2 of this chapter for further discussion of this view). The main point here is that these theoretical perspectives imply that we view approaches to risk and vulnerability not just as analytical paradigms but as forms of knowledge constructed and applied by particular actors in ways that are constitutive of the nature of risk (both as a biophysical process and in terms of the distribution and form of social vulnerability), and frame how states can and do control for risk and vulnerability.

In the context of this thesis, this scholarship begs the question: *how* do we understand the inter-linkages between knowledge about risk and the social and political conditions of urban informality, in particular in the context of responses by *states* (here taken to mean local or urban governments) to risk and vulnerability? In order to develop the conceptual tools to answer this question I turn to scholarship in STS concerned with knowledge construction, in political science and political anthropology concerned with the nature of state rule and its effects, and, relatedly, in urban studies concerned with urban state governance and informality. Through a critical reading of these literatures, I argue we need to rethink the state, its politics and its relationship to knowledge about risk in situations of urban informality if we are to generate a full explanation of how (urban) states act upon climate risk and with what consequences. Unlike the last chapter, which examined structural theories of entitlements, these fields of scholarship are largely situated on post-structural terrain, in their concern with knowledge-power relations and questions of meaning

¹⁹ However, this should not be read as a relativistic account of science.

and identity, and the intent to offer nuanced and historically contingent accounts of these phenomena (Birkenholtz 2008).

The chapter is structured in three parts. The first begins by setting out debates about the relationship between state power and knowledge, examining the idea of co-production as developed in STS and its potential to contribute to our understanding of urban risk governance. Although, I argue, existing studies concerned with the politics of urban risk management implicitly capture a number of aspects of co-production, I suggest that more explicit engagement with co-productionist ideas about the ways in which knowledge about risk is influenced by the practices of government is necessary if we are to better understand how risk becomes politically embedded in cities. The second part of the chapter examines questions that arise when we seek to embed the idea of co-production in theories of urban state governance and how, in this context, to rectify a central challenge to existing co-productionist accounts of state governance, namely the tendency to ‘black box’ the state. I examine three relevant debates: the first, how co-production might relate to ideas about the governance of urban informality emerging from the urban studies literature; the second, debates about how theories of governmentality and urban risk, whilst providing a new account of state practice, account for the political construction of expertise; the third, the implications for both of these debates of understanding the state as both a disaggregated and ‘hybridised’ entity (with ‘hybridised’ describing the state’s relationship to non-state actors in the context of informal urban areas). Finally, the third part examines the urban state and the societal politics of risk. It asks how we might understand the meanings that ground the responses of societal actors both to hazard risks and to state efforts to control these risks, and the potential for agency to reshape the experience of risk and vulnerability. Again, I argue that STS opens up routes for understanding local, context-specific meanings of risk in ways so far unconsidered in the literature on urban risk and vulnerability, but that critical engagement with theorisations of agency in response to state power and in response to the specific conditions of urban informality are necessary to frame questions about the modes of, and possibilities for, particular societal responses to risk and vulnerability.

3.2 The co-production of knowledge and state power

How, concretely, do we understand this intertwined relationship between risk knowledge and the state governance of informal urban settlements? This section embarks on this question by introducing the idea of co-production and its application to questions of knowledge and state power.

The idiom of co-production

Arising from inter-disciplinary work in Science and Technology Studies (STS) concerned with linking the practice of science to the practice of politics in a variety of contexts (beyond STS's traditional concern with the practice and discipline of science within the scientific community), Jasanoff proposes the frame, or what she calls 'idiom', of *co-production*. This aims to interpret and account for the intertwining of knowledge about the natural and social orders (Jasanoff 2004). Co-production, according to Jasanoff, is a way of thinking that allows us to see that the "ways in which we know and represent the world are inseparable from the ways we live in it" (p.2)(Jasanoff 2004). "Scientific knowledge", therefore, "...is not a transcendent mirror of reality. It both embeds and is embedded in social practices, identities, norms, discourses, instruments and institutions" (p.3, *ibid.*).

The idea of co-production arises from work in STS that seeks to define an important line between seeing science as pure 'objective' representation of a natural 'truth' or simply a (constructivist) reflection of social and political interests. Risk is *both* materially and socially produced. In the context of STS debates, this 'fully' symmetrical formulation (as Jasanoff calls it), marks a departure from previous approaches to science as 'realism' (the assumption that scientific statements accurately represent the 'real' world) or 'constructivism' (the assumption that scientific statements are shaped to some or other extent by social forces) in two key ways. Firstly, co-production seeks to avoid giving a primacy to either realm (hence Jasanoff's reference to 'full' symmetry, in contrast to the work of earlier 'symmetrists' who actually propounded a strongly constructivist view (Brown 2009). Secondly, co-production rejects the very idea of a distinction between realism and constructivism, or a separation of "the domains of nature, facts, objectivity, reason and policy from those of culture, values, subjectivity, emotion and politics" (p.3) (Jasanoff 2004).

The significance of co-production in the context of STS debates is that it retains the focus on the making of material things and exploration of the social influences on scientific knowledge whilst rejecting a deterministic account of both the social and the scientific. Not only does Jasanoff seek to reject any connotation that it is purely social phenomena that determine scientific knowledge and nature, but she insists that both the scientific and the social must be open to investigation. In particular, “one or another aspect of the ‘social’ risks being black-boxed, treated as fundamental, granted agency, and so exempted from further analysis” (p.20, *ibid.*). While this ‘constitutive’ element of co-production, or the examination of the ways in which we arrive at particular knowledges about nature and society, draws on the concept of hybridisation developed by Latour to describe the (dynamic) ways in which objects that are in fact socio-natural come to be produced as either social or natural (Latour 1993), co-production takes this further, examining their framing, legitimation and reception by different actors in the context of wider societal and policy processes in which power distributions, values, cultures and ideologies are seen as instrumental to shaping human agency (Jasanoff 2004).

There are two core elements to co-production. The first, the *constitutive*, examines the ways in which particular states of knowledge about nature and society are arrived at and held (or not). The second, the *interactional*, examines the organisation and re-organisation of knowledge after this fact, or how we know what we do. The practical framework that Jasanoff then proposes is to analyse the production of knowledge and technology alongside analysis of the making of identities, institutions, representations and discourses. Through this analysis, she argues, one can see how scientific ‘instruments’ serve particular functions in maintaining order (morally, politically and symbolically, although of course this may be contested) and help stabilise conceptions in both the constitutive and interactional domains (Jasanoff 2004).

Moving to analyse states and their knowledge claims, co-production can then exemplify “how knowledge-making is incorporated into practices of state-making...and, in reverse, how practices of governance influence the making and use of knowledge” (p.3)(Jasanoff 2004). In the constitutive mode of thinking, the work of James Scott illustrates how knowledge is constituted as part of the exercise of modern state power (although Scott’s analysis does not exemplify co-production in

its totality; see below). States 'see like states' through practices of representation that reflect the exercise of state power. "The builders of the modern nation state do not merely describe, observe and map", Scott states, "they strive to shape a people and landscape that will fit their techniques of observation" (p.82) (Scott 1998). Knowledge production by states, he posits, is simplifying, standardising and abstracting of the complex social and natural worlds states seek to govern in order that they can be made legible, acted upon and ultimately controlled. What is made legible and how, however, is a deeply political process in that it conforms to the interests of states (both for power but also the 'modernist' state's cultural and aesthetic affiliation with regimented and ordered forms of planning), and may be contested by the subjects who are to be 'read' through new systems of classification and representation. Indeed, Scott argues that the principal reason for the failure of major modernising schemes lies in the de-privileging of (indeed the attempt to suppress) practical, local-based knowledge (or the complex systems of functioning found in the natural world), which re-emerges in tacit and not so tacit forms of resistance (for a discussion of forms of agency and knowledge see Section 3.4 of this chapter).

Of course, Scott's reading of the relationship between knowledge and power in high modern states is also deeply interactional, in the affinity that exists between particular forms of expertise, the aesthetic predilections and political interests of those in power and the (brute) exercise of state authority. Jasanoff provides other examples, however, through which to see this 'conditional' relationship between expertise (such as risk assessment) and politics. She inserts Wynne's work to demonstrate how instruments of classification (such as risk assessment) are used in democracies to respond to public anxiety, both disciplining subjects but also creating a promise of control. In addition, her own work on the use of scientific assessment in US politics shows how the purported reliability, objectivity and expertise of vulnerability, risk and cost-benefit assessments provide the perception of neutrality that makes these approaches favourable for conflict resolution in the context of the scepticism of American politics. The result is not only the legitimization of science and technology but the constitution of a democratically accountable regime (Jasanoff 2004). Other examples from more newly-fledged democracies (although not explicitly 'co-productionist' accounts) show how the creation of 'regimes' of state

citizenship based on the emergence of bio-medical risks (such as nuclear contamination), alongside the new ‘technologies’ of risk assessment and treatment, legitimates other forms of state identity. The Ukrainian state’s response to Chernobyl (although in practice limited), Petryna argues, works to uphold its claim to protect and recover the truth about the Chernobyl disaster’s impacts, in contrast to Soviet repression (Petryna 2005).

Political influences on knowledge and studies of urban risk

A number of studies concerned with urban disaster risk management in (what all turn out to be) informal urban settlements claim that risk assessment as a particular form of state knowledge forms one mode of enforcing state domination over people and spaces. As Rebotier highlights, the spatial demarcation of risk zones (an obvious form of abstract ‘mapping’) is often closely tied to state projects of territorial ordering in cities (Mustafa 2005; Rebotier 2012). A number of authors emphasise how technocratic, physical-based systems of risk management find ‘fit’ with centralised, elite-driven systems of government, and may in some cases be further legitimised by the assumed visibility and political un-contestability of engineering solutions (an argument made by Rebotier and Nathan for Caracas and La Paz respectively (Rebotier 2012; Nathan 2008).

In direct response to Mustafa’s work, which highlights how a particular politics influences knowledge construction, Lane et al. write (in reference to flood risk management in the UK) that, as well as highlighting how a scientific account of risk comes to dominate in a particular context:

....the work also points to the need to understand why it is that scientific accounts take on particular forms. The decisions to construct a levée or to embark upon upstream land management are both decisions to make interventions in a hazardscape. Such decisions aim to prevent certain kinds of futures from happening. However, there are a multitude of interventions that could be considered, each of which require and are sustained by particular (and overlapping) suites of scientific practices relating to how data are collected and used, how mathematical models are developed and implemented, the assumptions made regarding possible future scenarios and the weight given to non-conventional sources of knowledge such as the information provided by flood victims.....The notion that a ‘suite of practices’ exists and has impacts in terms of how it causes interventions to take on particular forms is troubling, precisely because it unsettles the assumption that scientific analysis can unambiguously inform risk management.” (p.1787) (Lane, Landström, and Whatmore 2011)

However, the existing urban risk scholarship falls short of engaging fully with these ‘constitutive’ questions related to risk assessment, which allows us to see the ways in which socio-political assumptions are built into ‘technical’ knowledge. Where Lane et al. direct us, for example, is towards understanding not only how ‘expert’ knowledge is constructed in ways that do not conform to the physical and social world beyond the model, but also how they embody assumptions related to the institutional environment in which such expertise is made. Mustafa alludes to this but does not develop the point theoretically – he posits that “Many of the engineering solutions are driven by the explicit assumption.....that removal of people from the [flood] plain is impossible” (p.581) (Mustafa 2005). Lane et al. provide a more comprehensive analysis, and a converse scenario. They conclude that the need to provide flood risk assessments which can be operationalized in cost-benefit terms means closing down some of the ambiguity and uncertainty inherent in assessing future scenarios. What is allowed to remain ‘stable’ and what not is highly contingent and, in the process, particular institutional assumptions are written in to particular projections. One such assumption is that building and development will be prevented, despite knowledge that the consequences of floods are not simply related to the physical location of development but also to other factors beyond regulation (such as how properties are used and furnished) and knowledge indicating that regulation has been historically ineffective (Lane, Landström, and Whatmore 2011). In this regard, Lane et al. echo Wynne’s broader observation that assumptions made by ‘experts’ may take for granted the competence and trustworthiness of the institutions charged with controlling risk, or indeed may conceal failures to do so, thereby narrowing what may actually be ‘wider and more indeterminate’ risk issues (in which institutions themselves influence the scale of material risk) (Wynne 1996).

Lane et al.’s analysis encompasses older concerns within the sociology of scientific knowledge, about how social assumptions become inscribed in knowledge systems. As Jasanoff and Wynne write in an earlier work: “constructivist policy analysis recognises not only that issue framings do not flow deterministically from problems fixed by nature, but also that particular framings of environmental problems build upon specific models of agency, causality and responsibility” (p.5) (Jasanoff and Wynne 1998). For example, in deciding safe exposure levels for pesticide chemicals, regulatory agencies make essentially normative judgements about the ways in which

workers should behave (ibid.). Although some of this earlier work in STS is very much tied to the expert construction of knowledge, devoid of considerations of political agency, the fact that such knowledge comes, as Wynne memorably describes, ‘dripping with meaning’ (Wynne 1996) is important to understanding the contingency of risk assessment, as well as how it is received and acted upon, as I discuss in Section 3.4.

Co-production takes this analysis forward, examining the co-constitution of the natural and the social in ways unrepresented so far in the field of urban risk. In an example from the field of medical risk, Epstein shows how scientific *and* state policies and categories were essentially ‘hybridised’ to produce a form of health classification in the US (Epstein 2009). The importance of his study in this context is to show how the resulting form of categorisation ‘simultaneously served’ logics present in biomedicine, in the questions of identity around which lobbyists framed their concerns and in bureaucratic administration, or the way that the state administration inscribed categories used as standard in government. These were then built in to the procedures, discourses and institutions for governing health risk. The consequence, Epstein concludes, was to obscure important questions about the nature and causes of health problems, by classifying health risks based on biological difference – sex, race etc. – and thereby de-privileging a view of health risk as related to other, structural rather than biological, categories (such as social class) and practices (such as certain types of social behaviour) (ibid.).

In this section, therefore, I have introduced the idea and importance of co-production and discussed the ways it applies to questions of the relationship between knowledge and state power. I have suggested that applying the idiom of co-production to the question of how states construct knowledge about climate-related risk and vulnerability is useful because it entails a closer questioning of the content of expertise and how it is embedded in state politics and practice than the relevant literature currently allows for. However, co-production seeks to open up processes of ‘state-making’ alongside processes of ‘knowledge-making’. To deepen our understanding of co-production in the context of the urban governance of risk one must also ask: what of ‘states’?

3.3 Rethinking the state and the co-production of urban risk

In this section I seek to re-work the idea of co-production in the context of state governance of informal urban areas, examining what particular re-conceptualisations of the state imply for the co-production of urban risk and governance and how these dynamics might be implicated in the making of vulnerability. First, I address debates in urban studies about state governance of informality in order to provide a different reading of how the state operates in such areas and the processes through which knowledge about risk might accompany particular forms of state governance. I then explore ways in which to address the main critique to be levelled at the literature on state governance I have examined so far: namely that it ‘black-boxes’ the state. In the second part I discuss how Foucauldian scholars have sought to unpack the practices of the state, but how theories of governmentality are limited in accounting for the ‘constitutive’ aspects of co-production. In the final part I bring together a critique of the Foucauldian elements of urban studies scholarship and of the governmentality literature, arguing that both fail to account for ways in which states may in practice be disunited, and state power takes ‘hybrid’ forms in informal urban areas. In opening up the ‘social’ through these new readings of existing literatures, I argue for a more robust framework through which to explain the co-constitution of the social and the natural in the context of urban informality.

a. The urban governance of informality and co-production

The literature on state planning in cities in developing countries has only fairly recently begun to consider urban ‘informality’ as a core theme (Varley 2013; Duminy 2011; Roy 2005)²⁰. Although the literature is so far unconnected to the themes of risk and vulnerability, and, as I will discuss, has had little explicitly to say about expertise in politics, in this section I examine how critical theories of urban planning open up new ways of understanding the state, its knowledge practices and urban informality in ways that have implications for the analysis of co-production in informal areas.

The prevalent ‘reading’ of the state and informality has been to view informal spaces as beyond the purview of the state. This dominant view is characterised by Roy as

²⁰ Here I refer to what Duminy describes as ‘planning in the context of urban informality’ or planning *for* illegal, unauthorised or unregulated practices rather than conceptualisations of planning itself as an informal process (through backhanders, favours etc.) or the informalisation of state provision, e.g. the rise of non-state actors in the delivery of services and infrastructures.

one that “conceptualises informality as a separate and bounded sector of unregulated work, enterprise and settlement...this framework presents informality as an extra-legal domain and thus argues for policy interventions that would integrate the informal into the legal, formal and planned sectors of political economy” (p.82) (Roy 2009). Further, such areas are seen as classically ‘illegible’ in the Scottian sense, with attempts to bring them into the arena of formal state control complicated by a complex social dynamic that defies state simplification and representation, and has often been seen as synonymous with resistance to the state (Varley 2013) (see also Ferguson 2007; Huchzermeyer and Karam 2006 for examples of this view).

However, critical planning theory provides new readings of the state and its relationship to informality that, I argue, reshapes the way we understand the co-production of risk, as not only referring to the co-production of risk knowledge and state power *in* informal areas, but the co-production of risk with (in)formality, and risk with (il)legality itself. Roy’s work is seminal to this idea, and I briefly outline her core propositions here. The first is that state planning is integral to the production of informality – informal activities may lie ‘beyond’ the state, but it is the state itself that designates activities as legal and illegal, legitimate and illegitimate, authorised and unauthorised (Roy 2005; Roy 2009). In doing so, states deploy ‘states of exception’ (a concept developed by Foucauldian theorist Agamben, discussed further below) in the exercise of state power, although, contra Agamben, Roy argues that these are invoked across multiple (and ordinary) domains, and through the assertion of positive values as well as in the violation of universal norms. The second proposition which follows is that informality, rather than constituting a constraint on state power, is the very mode through which states are able to govern. Here we find present an important inversion of Scott’s argument:

While it has often been assumed that the modern state governs its subjects and conducts planning through technologies of visibility, counting, mapping and enumerating...I argue that regimes of urban governance also operate through an ‘unmapping’ of cities...forms of deregulation and unmapping, that is, informality, allow the state considerable territorialised flexibility to alter land use, deploy eminent domain, and to acquire land. [through which the state may also act contrary to its own stipulations, my addition from Roy] (p.81) (Roy 2009)

The ‘also’ is important here, and it is important to stress that Roy still sees the spatial aesthetic as a driving force in much ‘modernist’ planning²¹. However, unlike the assumptions of modernist planning theorists that planning processes are formalised and rule-bound, for her and other critical theorists state planning reflects a “process of exceptions, contradictions, ambiguity and arbitrary decision-making” (Duminy 2011), in which boundaries are not static, but shifting²². But while informality empowers the state, Roy continues, it also perpetuates the multiple, overlapping, and conflicting pre-existing social claims to land which the state now has to either compensate or ‘render illegal through new tactics of power and violence’ (thereby creating new exceptions, but also generating possible societal conflict around entitlements to newly ‘legitimate’ claims) (Roy 2009; Roy 2005). If Roy’s work suggests in this context that risk might also be co-produced with the production of (in)formality itself, it also suggests that knowledge is co-produced (and urban risk and vulnerability thereby re-made) with practices of mapping *and* unmapping.

However, two critiques emerge in response to Roy’s work which further affects how we view the co-production of risk alongside the state construction of informality. The first, arising from within urban studies, objects to her association of state mapping, or formalisation, as allied with the interests of powerful elites, and unmapping, or the perpetuation of informality, as always reflecting the marginalisation of poor groups (Varley 2013). Indeed, from the vantage point of Latin American urban studies, Varley points out that mass formalisation has occurred in many cities, at least in some countries (ibid.). While this does not preclude the idea of ‘unmapping’ as a practice of urban governance, and the state as implicated in the perpetuation of informality, it implies the need to be attentive to state practices at sites of inclusion, beyond the mere subjugation of informality to elite power, and to investigate the potentially heterogeneous ways in which the state may be present in informal areas.

More fundamentally, however, Roy, in inverting Scott but nevertheless retaining his characterisation of the state (and indeed invoking Agamben, see below for further discussion), guards a conception of the state as a unified agent, and offers little

²¹ Which she criticises for privileging the reordering of space over the development of people’s capacities or livelihoods.

²² And informality is not only a mode of governing and of being, but a way of knowing, a possible device through which to understand the state and such state processes itself.

account of its inner workings. Indeed, Jasanoff, although celebrating Scott's analysis, herself notes that Scott, amongst other social theorists and other forms of social construct, 'black-boxes' the state, in ways that perhaps preclude the analysis of the full interplay between the natural and the social (Jasanoff 2004). The following two parts of this section take up the challenge of unpacking the state and its relationship with expertise.

b. From 'state' to 'government': urban governmentality and expertise

Scott's account of the state in 'Seeing Like A State' is in many ways a deeply Foucauldian one, in that its core concern is the production of knowledge as central to the exercise of power, knowledge which is in turn both concerned with visual representation (see Corbridge et al. for a discussion of the 'visualisation' of power in Foucault) as well as dependent on particular techniques and programmes²³. However, it is through a deeper examination of the practices of government that Scott's critics argue for an analysis that is more revealing of how state power actually works. Further deconstructing state practice and the "messy, contradictory, multi-layered, contingent" effects it generates, is required, Li argues, to move us beyond Scott's analysis of the state around the question of 'why state schemes fail' (Li 2005). This part examines the work of 'governmentality' theory – defined by Inda as the "more or less considered and calculated ways of thinking and acting that propose to shape, regulate or manage the conduct of individuals or groups towards specific goals or ends" (p.6) (Inda 2005) – through this light. However, broadening out into a discussion of the relationship between conceptualisations of 'governmentality' and of expertise, I discuss the on-going role for co-production in providing an account of government in which knowledge is not only embedded in power, but power is fully embedded in knowledge.

In the only work to date that openly scrutinises urban disaster risk governance as a Foucauldian technique of power, Zeiderman exemplifies how the creation of disaster risk 'zones' in informal urban areas according to future-oriented, probabilistic calculations reflects a new form of urban 'biopolitical' rule, echoing Foucault's notion of 'biopower' as a modern technology of power concerned with the care and

²³ Although Foucault himself distanced himself from any intent to provide a theory of the 'state', focussing his work on the 'practices of government' that make up states (for further discussion see (Gordon 1991).

growth of populations (Zeiderman 2012; Inda 2005). He traces the historically contingent emergence of risk as a government concern, its expression in particular forms of expertise and the way a particular system of risk governance comes to embody particular frames and discursive constructions. The more explicit engagement with Foucauldian thought in Zeiderman's analysis advances our understanding of the nature of state power beyond the domination of authoritarian 'high modernism' towards the multiple forms of government rationality that make up the art of government Foucault designates 'governmentality'. In addition, in stressing the "forms of reasoning and practices with which experts bring threats into frameworks of technical intervention" (p.1575) (Zeiderman 2012), and, crucially, what these practices do, he provides a dynamic and relational account of the process by which 'risk-making' configures 'state-making' in the everyday. Far from treating risk as fixed ('out there'), he shows how, as 'expert' risk assessments are materialised in the interaction between state officials and 'non expert' inhabitants of state-designated risk zones (people and landscapes that are constantly shifting), the boundaries of such zones may be altered or unaltered, be accepted or contested in highly contingent ways. "Risk remains a technique for rendering the uncertain future actionable in the present, and yet it is continually reconfigured in the everyday practice of urban governance." (p.1574) (Zeiderman 2012). The very project of state governance – and thereby the making of risk – is ongoing and incomplete, or as Asher and Ojeda neatly remark in a different context: "the state appears as an unfinished project, always struggling to maintain dominance upon territories, nature and populations" (Asher and Ojeda 2009). More fundamentally, the practices of the state are not just instruments exerted by an outside actor (as Scott might lead one to think) but also the very mode of enabling and sustaining the state in a given territory, however unstable the process.

However, despite the contingency of its practice, can the singular logic of 'risk governance' account for how states control for risk and vulnerability, both in terms of the process and its outcomes? In the remainder of this section I argue for two extensions, if not corrections, to this view. The first, rooted in co-production, returns us to the question of how risk knowledge is constructed. The second, the subject of *part c.*, contends that other explanations of state processes, beyond biopolitics, are necessary to make sense of the outcomes of state practice.

The very idiom of co-production has its roots in Foucauldian theorising about knowledge as a means to power. However, through co-production, as Jasanoff uses political science to put questions of power back into STS discussions of expertise, she uses STS to put a more critical conception of expertise back into political and social theory. Co-production, she argues, invites us to “follow power into places where social theory seldom tends to look for it” (p.42) (Jasanoff 2004), i.e. back into the construction of ‘expert’ knowledge itself:

Most generally, co-productionist accounts add to existing theories of power, refining our understanding of what power means, and how it is formed and exercised. That knowledge is a form of power is not, of course, any longer a new idea in either social theory or ST&S; nor does it come as a shock that institutions exercise power through specific knowledge-making practices that form and constrain human subjectivities. Yet there are several ways in which the idiom of co-production inflects and accentuates these general propositions. First, it simply provides a constant reminder that, not only does knowledge constitute power, but equally power frames and organises knowledge; hence wherever power originates or is concentrated, one should also look for its expression through knowledge. (p.280) (Jasanoff 2004)

To give an example, in Waterton and Wynne’s analysis of co-production in the construction of environmental knowledge by the European Environment Agency, normative constructs about what the EU’s identity should be (what Jasanoff describes as the ‘most fundamental kind of politics’) become embedded in the process of technical decision-making, defining what information ‘counts’ (Waterton and Wynne 2004). It is this kind of politics that Jasanoff argues has “tended to be leached away in most high-modern theorising about expertise” (p.279) (Jasanoff 2004) as well as, I would argue, other forms of theorising about states and programmes of improvement. In their classic studies of the governmentality of development interventions, Ferguson and Li, taking her cue explicitly from Ferguson, describe how knowledge about the objects and subjects of development is ‘rendered technical’, made to match the apolitical tools of the intervention, with politicised questions of root causes ‘screened out’ in the process (Ferguson 1994; Li 2007). That purportedly technical knowledge may have political purposes and political consequences is commensurate with a co-productionist analysis. What co-production exhorts, however, in line with STS more generally, is that we understand that there may lie a politics *within* what is purportedly technical and not just in what is ‘cast out’.

Two further implications follow from this observation. The first concerns how we view how scientific assessments interact with discourse. A key concern of governmentality analysis is to reveal how practices of government arise from and constitute a discursive field, coming to be linked to particular social imaginaries and other types of reasoning (Dean 2010). To give an example, in their analysis of sustainable development policy rooted in governmentality, Summerville et al. show how the discourse of Sustainable Development policy mobilises a particular construction of community attached to notions of rights and responsibilities (Summerville, Adkins, and Kendall 2008). This ties the right to participation to a responsibility to pursue a particular, pre-set sustainable development agenda (ibid.). Co-production would also insist, however, that we understand how these discursive formations are lodged (perhaps) in the content of scientific indicators of sustainability themselves. In addition, knowledge constructions – and this is the second implication – must be seen as constructions that are in part contextually re-shaped, not simply given ‘instruments’ of power.

To give a final, pertinent example that most clearly approximates a merged thesis of how a ‘biopolitical’ impulse is enacted in the practices of government and then comes to *embody* a particular politics of scientific categorisation, Biehl’s study of the distribution of HIV/AIDS risk in Brazil situates a government regime for HIV/AIDS treatment firmly in a biopolitical paradigm but examines how categorisations embedded in the programme create processes of exclusion, and therefore new risk distributions (Biehl 2005)²⁴. Through a combination of bureaucratic procedure, informational difficulty, medical neglect and moral contempt the programme targets certain pre-defined social categories of what it means to be an ‘AIDS citizen’ (in this case a population who identify themselves as AIDS cases in an early stage of infection at a public institution and search for regular treatment), while those who cannot be framed within this planned demand remain unregistered (ibid)²⁵. The point is that risk – as a newly enabled field of government – certainly enables and

²⁴ Although Biehl does not cite Jasanoff he does use Latour, but echoes Jasanoff’s critique of Latour that his work lacks both historical specificity and a way of understanding how scientific and social technologies become combined in governance.

²⁵ The production of medical knowledge is also joined to the reproduction of social norms in a way that speaks to the linkages Jasanoff makes between knowledge, institutions and discourses: the unregistered are often only medically categorised when they die, but when they do so they are socially labelled (as robbers, prostitutes and so on) in ways that allow social blame to be attached to their deaths.

mobilises a new form of politics for people, but it is only by understanding how risk comes to be constituted in a ‘categorical matrix’ that we can trace its exclusionary effects.

Drawing the analysis of this section together for my analysis of urban risk, I suggest that rather than adopting a view that sees risk as reconfiguring the political terrain on which states engage with citizens in a parallel manner to other forms of government ‘rationalities’, such as the enactment of rights and citizenship, we ask how they function together and inform each other in the very field of expertise enabled by risk assessment. Drawing on the suggestion of *part a*, we might want to question too how the governance of risk not only accompanies but perhaps embodies the governance of informality, a question so far unaddressed in either literature. Only in opening up the ‘technical’ to question in this way, I argue, can we fully understand the layers of meaning that structure the state-citizen encounters Zeiderman describes, encounters which I further argue not only re-make the technical project of risk management but also restructure forms and distributions of urban risk and vulnerability.

c. Disaggregating the state and the implications for urban risk

This final part of Section 3 reviews a core implication of the theoretical literature so far, that states or fields of government practice both cohere around, and are able to enact, their given agendas. Here I unravel some of this conceptualisation of ‘state-making’ by examining scholarship that, firstly, recognises internal divisions within states, and secondly, grapples with the role of non-state actors in relation to state governance.

Numerous authors note that the state itself is not a monolith; state elites, agencies and levels of government may themselves be at odds around a given agenda (Joseph 1994; Corbridge et al. 2005; Gupta 2012)²⁶. However, for Gupta, this conceptualisation of a ‘disunited’ state is central to providing a different theorisation of the process through which state power produces, in his case of concern, mass poverty (for which we might substitute risk and vulnerability in conditions of informality). Biopolitics, he argues, cannot account for this disunity, and is therefore weak in explaining the differential outcomes of biopolitical regimes:

²⁶ Indeed, Corbridge et al. refer to the state as best thought of as ‘bundles of everyday institutions and forms of rule’, although I would argue that this underplays power and the state projects pushed from the centre (Corbridge et al. 2005)

Foucault's argument for the rise of biopolitics depends on the convergence of diverse institutions in different settings around a particular way of conceptualising a problem, for which they then seek solutions that involve the control and care of the population (Gupta 2012 p.42)

Contra Agamben, invoked by Roy to explain the construction of urban informality, he argues that the state is in fact "an incoherent agent" for the violence of poverty. Agamben, he continues,

...operates with a notion of a strong state insofar as he assumes that a decision to declare a state of exception is tantamount to its de facto existence. Agamben does not worry about whether such a decision is effective in creating a state of exception. (p.45) (ibid.).

Gupta's proposal to explain the production of poverty revolves around the idea of poverty as 'structural violence', enacted without a direct perpetrator, although in an environment in which poverty is 'normalised' by elite discourses and bureaucracy enshrines indifference, "a disaggregated view of the state makes it possible to open up the black box of unintended outcomes by showing how they are systematically produced by the friction between agendas, bureaus, levels, and spaces that make up the state." (p.46-47) (ibid.).

Key to understanding such outcomes is understanding how they are made up by the 'routinised practices' of the state. Techniques of regulation, enumeration and accountability, for example, accompany new programmes for social welfare, in order to ensure their effectiveness. However, their operationalization stalls, with acts such as surprise inspections held up by tensions between different layers and levels of government (ibid.). Other practices such as corruption are less arbitrary in their outcomes, however, and more systematic in their exclusion of the poorest (ibid.).

Although Gupta's analysis lacks an explicit focus on expertise in government, I suggest it nevertheless has implications for the relationships between knowledge and power that I have posited influence how states control for urban risk and vulnerability. In terms of understanding not only how knowledge is arrived at but how it is enacted, Gupta suggests that the state may in fact be a weak agent of transformation. In addition, whereas previous authors have cast the problems of informality and risk as related to exclusionary policies, Gupta calls our attention to the possible persistence of risk and vulnerability at sites of stated inclusion. However, he allows us to see how the contingent effects of this 'politics of inclusion'

are nevertheless structured by specific practices of government, that may accompany – or even be co-produced with – new regimes of risk management.

Gupta's study is also confined to relationships between state-based entities and agencies. Theorists concerned with states and knowledge (and environmental knowledge production in particular) have, however, also been attuned to the role of non-state actors in mediating state-based knowledge. Birkenholtz, for example, drawing on Li, examines how, in relation to water management, the state shifts in and out of view for farmers near Jaipur, India, with phases of state retreat creating a 'knowledge gap' in which farmers turn to alternative forms of expertise. At each stage the relationships between meaning and power in which farmers are engaged alter, complicating the state's own project of groundwater regulation²⁷ (Birkenholtz 2008). Arguing against Li's 'postmodern' vision of multiple knowledge actors exerting power through knowledge, however, he demonstrates that there is no uni-directional relationship between non-state knowledge and power, which may also generate deeply contradictory effects (*ibid.*).

Literature from urban studies certainly indicates that forms of 'hybrid authority' or 'legal hybridity' may be an institutional feature of informal areas, through which state power and authority is both bound up in, and circumvented by, other actors. Against the notion of informality as an 'exceptional' space, beyond state authority, Varley writes "just as the informal is present in elite spaces, so too is the law present in informal spaces" (p.17) (*ibid.*). Even where, for example, land appropriation is undertaken illegally by non-state actors, such processes may still be conditioned and legitimated by law (*ibid.*). It is not clear, however, how these dynamics relate to state production of knowledge and expertise, and state attempts to control for risk and vulnerability in these areas.

In sum, this Section (3.3) has suggested new theoretical directions for understanding urban 'state-making' and unpacking the 'black box' of the state in order to move to an account of how risk and government may be co-produced in informal urban settlements. To do so, I have drawn together theories of 'exception' developed in urban studies and of the 'biopolitics' of risk developed by Foucauldian scholars to develop our understanding of state practice in urban areas. However, I have then

²⁷ Also because state visibility is important to farmers' trust in the state.

discussed the limitations of the purchase of these theories both on questions of knowledge and expertise – as critical to co-production – and on understanding the division and hybridisation of states. In the final section of this chapter I complement this work by moving from an examination of ‘risk and informality from above’ to examining ‘risk and informality from below’ – how we understand responses to the state and how this might also alter our view of states and co-production.

3.4 The societal politics of risk in informal urban settlements

In arguing for a more politically-aware and interpretive framework for understanding urban risk Rebotier remarks, “It is important to start from a grounded analysis of how risk is lived, experienced and given meaning by the different actors involved. It is on the basis of this subjectivity that these actors respond and act.” (p.393) (Rebotier 2012) But how, in informal urban settlements, do people respond to state interventions to reduce risk and with what implications for risk and vulnerability? What meanings ground their responses, and what do these reveal about risk? What agency do they have to respond and what is the potential of this agency to redefine their experiences of risk and vulnerability? These are important questions in their own right, but are also intrinsic to how we understand the state politics of risk, the limits to the power of the state (Li 2007) and the unevenness of its hold over its subjects (Birkenholtz 2008). In this section I examine how three bodies of scholarship have addressed these issues: writers in disaster studies, drawing heavily on work in political ecology; Foucauldian scholars concerned with the nature of subjectivity, and STS scholarship on public relationships with expertise.

Conceptualisations of urban risk ‘from below’ in the disasters literature

Numerous authors writing about urban disaster risk note the potential for societal contestation vs dominant knowledge actors around the causes, nature of and possible solutions to disaster-related risks (Pelling 1999; Mustafa 2005; Aragon-Durand 2007; Rebotier 2012; Pelling and Wisner 2009). Authors in the field of disaster studies have sought to extend the application of political ecology to the field using post-structuralist ideas. These emphasise the role of discourse as critical to the social construction of hazards, and use sociological and cultural theories of risk to emphasise the its performativity, or sense in which risk is also a social product that does things in the world (Mustafa 2005; Rebotier 2012; Aragon-Durand 2007;

Pelling 1999). It is in these social realms that contestation can then be located²⁸. Perhaps because of its roots in political ecology, this theorisation leans towards an emphasis on struggles over resources and societal resistance to dominant framings – to give one example from Rebotier, in which he draws on work by political ecologist Michael Watts and others: “understanding [the] meanings [of risk] to different social groupings highlights the differences in interest that are part of the struggle to claim rights and resources within the very territories at risk” (p.392) (Rebotier 2012). The meanings that underpin such struggles are discussed in order to show the dissonance between official and lay understandings. The authors situate lay understandings in differing psychologies of disaster, the meanings of place for people (Rebotier 2012), the experience of multiple and inter-related environmental hazards (Mustafa 2005; Pelling 1999), disputes over the causes of disasters, including the role of the state in causation (Aragon-Durand 2007), the livelihoods options offered by state solutions and the behaviour of the state itself (Mustafa 2005).

However, to illustrate how state responses to risk are reworked in the local context of urban informality, and with what effects, I argue that additional theoretical insights are needed. Owing to the rootedness of these urban studies in political ecology more broadly, there is a tendency to reproduce what Agrawal describes as the ‘easy conflation of communities with resistance’ (Agrawal 2005). This has two consequences. First, it leads to an analytical neglect of the multiple forms that societal agency might take, reflecting multiple positionings vis a vis the state (Li 2007), and their impact. Second, in stressing the ways in which societal responses work against the state, we miss the possible influence of state interpretations of risk on local understandings and actions. It is to this theme of the interpenetration between state power and societal response that I now turn.

Subjectivity and agency in the governmentalisation of urban risk

Foucauldian-inspired scholarship provides a more explicit treatment of how state power shapes subjects and how subjects negotiate that power (Inda 2005). To explore this in relation to urban risk governance, Zeiderman reworks the ideas of Chatterjee who, drawing on the concept of governmentality, examines the ‘politics

²⁸ Both Mustafa and Rebotier offer new spatial conceptualisations of risk – the ‘hazardscape’ or ‘territorialisation of risk’ framework – in order to allow for the role of power dynamics in the construction of risk, including in shaping the possibilities for societal action and influence.

of the governed' of the urban poor in response to new bureaucracies of governmentality (Chatterjee 2006; Zeiderman 2013). Zeiderman's framing highlights how forms of societal agency may be co-created with a state politics of risk, as new forms of risk governance give rise to new sets of state entitlements around which individuals and groups mobilise (Zeiderman 2013). Echoing writings in disaster studies and political ecology, he shows how broader struggles around resources (such as housing) in the urban space are thereby also played out on the terrain of risk governance, with the governmental logics of risk becoming bound up with people's broader aspirations for human security, citizenship and well-being in the city (ibid.). However, in its debt to Foucault, the work allows for a stronger understanding of the ways in which 'local' responses are enmeshed in systems of governmental power and practice, and Zeiderman illustrates how such negotiation 'from below' entails navigating new frames of inclusion and exclusion, legitimacy and illegitimacy created by the new state politics of risk, a process in which verification of 'risk status' (dependent on scientific assessment) is critical to acceptance and depends on specific practices and performances²⁹. From Chatterjee, Zeiderman also brings, however, a reformulation of ideas about the practice of governmentality in the context of non-Western modernity, in which negotiations with the state do not just occur through a 'politics of rights', predicated on a liberal democratic theory of the social contract and universal citizenship and rights, but through a (more tenuous) '[bio]politics of life', or as members of politically-defined population groups entitled to care and protection (although, interestingly, he does not pick up on Chatterjee's central argument about how such a politics relates to informality, which, in Chatterjee's account, limits the state's ability to legitimate popular association and extend universal rights) (ibid.). In the context of debates about the politics of urban risk governance, these ideas give more concrete form to the question of how agency is mobilised, as well as what it is mobilised to do.

However, in seeking to render a more precise account of how such processes influence the form and distribution of climate risk and vulnerability in conditions of urban informality, I raise three issues problematic to the wholesale adoption of the Foucauldian view of agents as 'biopolitical subjects'. The first reflects a charge

²⁹ These are not only determined by formal procedure, he highlights, but also call into play other culturally interpretive frames – in being too active in seeking state support one can arouse suspicion of cheating the system or preying on the vulnerable and invite denigration.

Agrawal levels at Foucauldian scholarship on subjectivity more broadly, namely that “There is little or no indication of...how one is to explain variations in transformations of subjects.” (p.12) (Agrawal 2005). Concomitant to this point is how to explain variations in forms of agency, accounting for the possibility of societal disengagement as well as engagement, and providing a broader register for how qualified particular forms of agency may be for particular groups or individuals. The point is addressed to some extent by Chatterjee, who argues in the particular case of the bookbinders that their mode of production prevents class-based organising, although, in doing so, he both privileges class as the basis for organisation and formal association as the mode of engagement with government (Chatterjee 2006). Kudva, by contrast, illustrates how multiple forms of societal response – an “everyday politics of stealth, survival and encroachment, as well as the seemingly sporadic episodes of collective violence and the politics of redress” (p.1615) – shape the construction of informal spaces in which people live and work (Kudva 2009).

The second issue relates to whether the emphasis on the ‘politics of the governed’ implies a convergence by societal actors on and around a singular logic of government when, in fact, people’s possibilities for agency are conditioned by the presence of multiple state apparatus, and broader shifts in state responsiveness (perhaps obscured in the Foucauldian concern with practices of government rather than state institutions). Indeed, the first argument follows from Gupta’s earlier critique of the biopolitics of government, and he illustrates how, in having to negotiate with different bureaus and offices who do not necessarily share the same agenda, people’s claims to entitlement may be restricted (Gupta 2012).

Finally, I argue that a biopolitical approach to urban risk – focussed on the ways in which people become subject to and negotiate certain pre-existing, state-based forms of knowledge – neglects a full exploration of the meanings and knowledges that lie ‘underneath’ societal responses to risk and to the state, how these are articulated in distinct social contexts and alongside distinct social and political concerns. In, again, isolating the technical paradigm of risk as the dominant discourse, we miss – and here I mirror the co-productionist argument about state knowledge – how understandings of risk might function alongside and become informed by other discourses and rationalities. As I go on to explore here, not only scholars of science

studies, but also those in a political ecology tradition, regard these localised meanings as intrinsically important to understanding what risk in fact is, but also recognise that these meanings feed into societal responses to risk assessment.

Drawing together the implications of the last two sections, therefore, I stressed how those working in disaster studies tended to de-emphasise how local meanings related to risk and risk assessment arise in interactions with the state and state expertise, whilst Foucauldian theorists have paid little attention in the urban context to the role and content of local conceptualisations. In the final section dedicated to the societal politics of risk, I explore how scholars in STS – although not focussed on the context of developing world cities – articulate these concerns, critically adding a new reading of public conceptions of risk assessment linked to the public's relationships with expertise.

Identity, value and expertise: readings of lay understandings of risk from STS

Co-production, as an idea tied to the creation and use of formal science, here in the context of what Jasanoff calls the 'power of the rulers over the ruled', affords little space to address questions about the construction of 'alternative' knowledge orders (which may, of course, include incorporations, borrowings and reinterpretations of formal science) in relation to the politics of the 'ruled'. However, still within STS, discussions of 'lay knowledge' or 'local, contextual knowledge' offer both a distinct conceptualisation of risk based on this experience, and link the expression of local perspectives on risk to the public's relationship with expertise. This 'cultural-hermeneutic' reading of risk overlaps with the hermeneutic aspect of livelihoods analysis discussed in the previous chapter but, as well as taking a distinct form, adds a number of critical dimensions.

Wynne, in a seminal critique of modernity's relationship to risk as well as rationalist models for understanding public conceptions of risk (although he does not exclude a role for the 'rational-calculative'), in essence proposes a different form of co-production to the institutional forms of co-production discussed above, in which non-expert and non-institutional forms of experience and knowledge too are tied to their own 'idioms of identity and social order' (Wynne 1996). The content of these conceptions, he writes, is both revealing in its own right (often because it makes apparent the social values and questions of institutional responsibility contained in

risk assessment, which people may intuitively recognise), but is also conditioned by relationships of dependency on expertise. What is experienced as risk, therefore, is highly rational in involving judgements about the behaviour and trustworthiness of institutions. Critically – beyond physical risk alone – it also embodies and is felt as threats to cultural identity and the closing down of questions of social value that occur through risk assessment (what Wynne calls ‘identity-risks’). Wynne cautions us, therefore, against equating public trust of risk assessment with a lack of public contestation, arguing instead that public attitudes may in fact be characterised by deep ambivalence, but constrained in their expression by a social and psychological dependence on institutions and the fact that that dependence is normalised in the collective experience of less powerful groups (in itself an aspect of ‘identity-risk’).

To give an example which serves to illuminate the possible natures of lay knowledge, Wynne highlights how the scepticism of sheep farmers in Cumbria in response to scientific assessments of the Chernobyl fallout was underpinned by doubts about the credibility and competence of expert authorities, in contrast to experts’ claims to authority. Farmers, however, expressed that they felt they had little choice but to believe them. In addition, experts neither understood the livelihoods implications of the restrictions they endorsed on hill sheep farming, nor had specialist knowledge of farming and local environmental conditions. The type of knowledge that the farmers displayed, in contrast to the risk assessment they were subject to, “assumed predictability to be intrinsically unreliable as an assumption, and therefore valued adaptability and flexibility, as a key part of their cultural identity and practice” (p.67) (Wynne 1996).

The question that Wynne’s work raises here, therefore, is what idioms of identity and social order may shape cultural responses to risk in informal urban settlements, and how these might affect responses to state efforts to control for vulnerability. However, Wynne’s reading of local and contextual knowledge, and therefore the analysis of how risk is experienced as ‘identity-risk’ is not entirely unproblematic (Wynne certainly notes that it may also involve undesirable elements of social control too). The first critical point to make is that Wynne’s ‘dependency’ thesis allows little room to discuss the possibilities for, and ways in which, people may also overtly contest or covertly protest against risk assessment. A second point – and this applies equally to many of the authors referred to here in disaster studies whose

sympathies also lie with the promotion of ‘non-expert’ knowledge – is not to essentialise local and contextual knowledge, or attribute it to social groups without exploring the possible differences in conceptions held by those groups (Forsyth 2003; Agrawal 2005; Robbins 2000). Such differences may in fact be the basis on which people resist the state, as simplifying their social experience (Birkenholtz 2008). Given what Roy describes as the ‘inevitable heterogeneity’ of urban informality this is a critical point in context, and, although existing studies are scant and do not link the point with analysing responses to risk assessment, scholars have certainly suggested that there are differences within informal settlements in how newer and older settlers and those with different tenure statuses view and manage risk (Roy 2009; Baker 2012)³⁰.

3.5 Conclusion

As the previous chapter laid out, the predominant tendency in contemporary urban climate risk debates has been to treat risk as a physical ‘given’, paying less attention to the ways in which the biophysical and socio-political aspects of risk may in fact be integrated. This chapter has broadly argued for a view that enables us to understand how knowledge about risk and vulnerability becomes a project for urban governance, and how the socio-political and physical become mutually constituted through this project and its application. In taking this view, we therefore see how the construction of knowledge is central to the ways in which states control for urban risk and vulnerability, with scholars of risk concerned both with the impact of ‘closed’, technical systems of knowledge but also the ways in which these systems may carry embedded meanings for people. This form of analysis also moves us beyond the types of vulnerability theory discussed in the previous chapter, in which vulnerability is largely seen as a function of material and social resources and groupings, to understand how political categorisation and representation might function to illuminate or obscure particular questions about risk, and potentially drive the creation of particular forms or distributions of vulnerability (a charge as yet untested in the urban climate risk literature).

³⁰ Mustafa also expresses discomfort at using the term ‘indigenous’ in an urban context, and it is notable that Wynne’s examples draw on what he describes as ‘indigenous’ rural knowledge systems. Without wanting to deny a place for what might better be called ‘specialist’ local knowledge in the urban context (in that it is historically rooted and place-bound), of course the dynamics of urban life (possible mobility and heterogeneity) and the co-occurrence of urban hazards with the socio-economic processes of urbanisation of which people are a part are potentially distinct phenomena that might affect how such ‘specialist’ knowledge develops and is manifest.

Underneath this broad view, the chapter has used a number of theoretical viewpoints, exploring the tensions between them, in order to develop a more critical conceptual lens for understanding the application of these arguments in the particular context of informal urban settlements. The idea – or idiom – of co-production from STS allows for an important conceptual departure from pre-existing ideas about the production of nature, and the production of nature in cities – and one which forces us to push questions about how knowledge comes to be constituted further than literature around urban risk – in either disaster studies or governmentality studies – has done so far. However, co-production necessitates understanding the mutual construction of the social and the natural and here I have sought to unpack the state, weaving together perspectives from urban studies and governmentality theorists, and their critics, to suggest a number of ways in which we might review the construction of social order in conditions of urban informality. Finally, I have set studies of societal responses to risk from disaster risk studies, governmentality theorists and STS alongside each other in order to understand how they address the issues of public understandings of risk and risk assessment, and the agency that those ‘at risk’ may exercise vis a vis the state. I have argued for an approach that not only addresses how people might hold their own conceptualisations of risk, distinct from that of formal risk assessment, but how the two may be co-constructed in relationships with the state and state expertise. However, in seeking to answer the question of what these meanings and interactions do for state efforts to control risk and vulnerability I have suggested that existing studies provide only weak explanation of the forms and potential for societal agency to re-frame the conditions that they face.

Taken together, these two theoretical chapters set the stage for a different way of understanding how risk and vulnerability arise and are experienced in informal urban settlements. In Chapters 5, 6 and 7, I apply these theoretical insights to a single case study, examining, first, the co-production of state knowledge about risk and its effects; second, societal responses to state risk assessment and, third, how urban households and communities use their agency to re-shape the risks they face.

Chapter 4 Research Methodology and Context: Exploring New Directions for Vulnerability Research in an Urban Context

4.1 Introduction

The aim of the research was to explore the drivers of climate-related risk in informal, urban settings and to ask what risks were being adapted to, how and why. In addition, the research aimed to elucidate how state policies and practices – and the knowledge about risk that they embodied – shaped and re-shaped risks and vulnerabilities in informal urban communities. Two central research questions guided the research:

Do existing approaches to risk need re-thinking in informal urban settlements and, if so, how?

How do states control for risk and vulnerability in informal urban settlements?

This chapter outlines the methodological approach taken to answering these questions, and provides an introduction to the empirical context for the research. Section 4.1 explains the research design and case selection, Section 4.2 reviews the methods of data elicitation and analysis and Section 4.3 discusses the challenges encountered during the research, including issues related to research ethics. Section 4.4 then sets out the background to the research context, which frames the analysis that follows in Chapters 5, 6 and 7.

4.2 Research design and case selection

The over-arching strategy for the research was to use a multi-sited case study analysis. As Yin outlines, research that aims to 1) be broad in scope, 2) to examine contextual or multivariate conditions and 3) to rely on multiple sources of evidence is highly suited to case study analysis (Yin 2003). In addition, case study analysis is particularly apt for research into vulnerability to risk, given the place-specific nature of vulnerabilities, as Ribot details:

Vulnerabilities and their causes are diverse. Responses to vulnerability must be developed from detailed understandings of specific problems in specific places—general principles and models are insufficient. Case studies inform us of a particular set of dynamics and opportunities for vulnerability reduction in a particular place. p.63 (Ribot 2009)

However, in electing for a single case study approach in order to provide a rich depth of analysis (see Ragin for discussion of the advantages of a small number of cases, (Ragin 2007), generalizability (or ‘transferability’ in qualitative research, given that one is not generalising from a population sample; see Maxwell 2009) from the case may be limited. For this research project, a case was chosen that not only met a set of criteria suitable to the research questions (a city with large informal settlement and a history of disaster risk management in those settlements managed at the municipal scale), but was a known ‘outlier’ among cases, because of its well-developed risk governance policies and programmes. Its uniqueness was felt to be useful because of the potential to draw lessons for other low to middle income cities where resources and institutions were only just being developed to tackle climate-related risks, and also because of the potential to add to the relevant literature which, in highlighting problems of financial and institutional capacity as central to the creation of risk and vulnerability, may have neglected other relevant aspects of the institutional context. The rationale for a Latin American case echoes this - Latin American cities remain under-studied in adaptation and disaster risk debates compared to their African and Asian counterparts, despite the potential lessons from cities that have, in general, had a longer history of urbanisation and where power is comparatively decentralised to municipal authorities. Section 4.4 provides further details of the case study – that of a landslide risk management programme in the informal settlements of Bogota, Colombia.

A final point to note concerning transferability of findings is the choice of a disaster risk management programme, rather than a climate change focussed programme, despite using the case to draw lessons for climate change adaptation debates. Although landslides are hydro-meteorological hazards, affected (among other factors) by precipitation patterns, and are therefore climate-related, there may in fact be no linkage in this particular case between landslide occurrence and climate change. In addition, although disaster risk management programmes are often the ‘entry point’ for new adaptation measures, disaster risk management policies in themselves may not achieve adaptation, as actions taken to mitigate disasters in the short-term may prove maladaptive to climate change in the long-run. However, the research strategy I adopted (given the lack of urban adaptation programmes underway in cities at the time of the research in 2009-2010) was to examine the case

as an analogue (or examination of a past or present experience of a climate change or extreme) through which to draw conclusions for adaptation debates (Ford et al. 2010).

Finally, although concentrated on one city, the research design allowed for multiple field sites within the one municipal context. Here, comparison can improve the validity of information (by triangulating across sites) but also highlight critical factors and spatial difference. Section 4.3 discusses the challenge in accessing sites and Section 4.4 provides a brief history of and context for the main risk zones chosen as study sites for the research.

4.3 Information elicitation and analysis

Data collection took place over a one year span in 2009-2010 during which time I undertook repeat visits to the case study site, the city of Bogota, Colombia. Data collection focussed on understanding the city government's risk management policies and practices, in particular measures relating to the *ladera* (hill slopes) programme in the informal settlements of the south of the city, and their impact, and on investigating the drivers of vulnerability at the household scale, including household and community-level perspectives on risk and risk management. The case study design allows for the use of multiple methods to collect data. A summary of the methods used is provided in Table 2.

1. Understanding state policy and practice 'from the top down'

In order to understand the formal and informal mechanisms through which state institutions sought to control risk and vulnerability in informal settlements, and how risk assessments influenced and were influenced by the history, culture and practices of governance in Bogota, I interviewed present and former government officials responsible for different elements of the risk management programme. The interviewees ranged from former directors of the Disasters Management Agency (the DPAE) to those implementing resettlement programmes in landslide-affected risk zones. They were identified by contacting the relevant institutions and then by 'snow-balling', or asking key informants for details of further informants. A table of interviewees is listed in Annex 1. The interview format was semi-structured, and although the format was adapted to the expertise of each interviewee and the objective of the interview, a broad topic guide was used to structure questioning.

This covered the processes of risk assessment, the procedures of risk management, how these had changed over time and why and how they were affected in practice by their implementation in an informal, urban zone. Key programme documents and risk assessment documents for each field site were collected and reviewed (where available). In addition, municipal decrees relating to the risk management programme over the past decade were downloaded and reviewed.

2. Investigating community perspectives 'from the bottom up'

To understand the processes driving risk and vulnerability in informal settlements, and local perspectives on risk and responses to the state-led risk management programme, I used the following methods across four landslide risk zones (although for reasons discussed in 4.3 the research eventually concentrated in only three risk zones and related resettlement sites).

Participant observation

As touched on in Chapter 2, in order to allow for a more contextually sensitive, relational and potentially political reading of vulnerability dynamics in cities, in which livelihoods are understood as embedded in networks of meaning and power, flexible and open methods were needed. Both participant observation and oral histories were used, supplemented by a semi-structured household survey for reasons described in section iii below. Participant observation, far from being passive observation, entails recording observations of daily life and informal interviewing, talking with people as the opportunity arises and learning about their reality (Agar 1996). Such observation shaped later, more structured empirical work but was also well suited to the context, where visits to zones would arise at a moment's notice, households had often moved on by the time of the next visit and the level of informality of this kind of method allowed for key insights into sensitive topics.

i. Oral histories

I used an oral history method in the sense suggested by de Haan and Zoomers for livelihoods analysis which, although derived from the method of taking life histories, focusses less on full life chronologies, and instead on particular 'livelihood trajectories': "Livelihood trajectories try to penetrate into a deeper layer of beliefs, needs, aspirations and limitations and especially need to be contextualized in relation to power and institutions" (p.43)(Haan and Zoomers 2005)

Oral histories are a useful method for probing the interactions between structure and agency (Lewis 2008). An actor-centred method, they can also give voice to marginalised groups, and reveal new narratives that challenge received wisdoms and policy narratives (ibid.). However, informants may have their own idiosyncrasies that influence the content of the interview, and may vary in their capacity to ‘perform’ these kinds of narrative interviews (Baulch and Scott 2006; Lewis 2008). Although the aim is to allow subjects to speak for themselves, in fact such interviews are ‘co-constructed’, with the researcher still framing the material (ibid.). As with other qualitative methods, therefore, reflexivity about one’s own interpretation of the data, transparency about potential biases and triangulation and validation of important information is all key to the use of such data.

Although the format was largely unstructured, to allow for new dimensions to emerge and for people to express their views in their own fashion, key questions focussed the discussion on understanding the history of people’s settlement in the zone, their responses to the impacts of landslides and the landslide risk management programme and their aspirations for the future. Interviewees were approached during site visits, and sometimes after a round of surveys had been undertaken, with the aim to broaden the range of interviewees as much as possible. In most cases I interviewed individuals, but in some I interviewed families (which helped me to understand the household dynamics of decision-making) and undertook repeat visits – both as the interviews were long and time-consuming and because this gave me an opportunity to observe decision-making processes as events unfolded in the risk zones.

ii. Semi-structured household survey

A household survey was used which consisted of a series of closed questions about peoples’ livelihoods (household origin, ownership, social structure, material, economic activities, assets, levels of education and health status, access to services, social involvement) followed by semi-structured questions about the official risk status of the household, risk perception and the impacts of landslides, coping actions and actions with regards to the risk management programme. The survey was piloted with ten households in one neighbourhood before being refined and used more widely. The survey is included in Annex 2. Household selection aimed to maximise the representativeness of different household types (in keeping with the aim of

qualitative research to sample a range of views (Bauer and Gaskell 2000). As far as possible, the survey was carried out across different areas of each neighbourhood, with households of different wealth status (indicated by the housing material) and with households of different risk statuses. The latter part of the semi-structured survey, as well as the use of semi-structured interviews (see below), allowed me to ask questions within a relatively confined time period (augmenting data from participant observation, for example, which requires absorbing the social milieu over a long time frame) whilst still retaining the aim of “a fine-textured understanding of beliefs, attitudes, values and motivations in relation to the behaviours of people in particular social contexts” (p.39) (Bauer and Gaskell 2000). The livelihoods data collected enabled me to put these beliefs and motivations into context, examining the attitudes and trajectories of different social groups.

iii. Semi-structured interviews

Semi-structured interviews were carried out with community leaders and other key informants in each risk zone. As for district officials, the format was adapted to the expertise of each interviewee and the objective of the interview. A common set of topics was covered, however, about the general history and the history of landslide risk and risk management in each zone, current risks and vulnerabilities and the operations of the risk management programme itself.

iv. Document analysis

Informants in the neighbourhoods passed on legal documents and letters to state agencies which were analysed alongside my interview transcripts. As well as collecting these in the field, I used internet searches to find documents relating to court cases brought in each of the risk zones.

Table 1: Example of methods used: the neighbourhood of Caracoli

1	6 household surveys in March 2010 in upper and lower high risk zones (research then halted after barrio murder)
2	14 household surveys in August 2010 from medium risk zone that had been changed to high risk after a landslide in June 2010
3	Key informant interview with Junta leader and former Junta leader (among original founders of the barrio) as well as Red Cross co-ordinator for the zone
4	One oral history
5	Walks through with <i>vigias</i> (local 'watchmen') and informal conversations with householders
6	Attendance at water company and community meeting

Table 2: Summary of methods used for data collection

Method	Data characteristics		
	Themes covered	Temporal span	Quantitative density
Participant observation / field visits <ul style="list-style-type: none"> With and without district officials In 4 risk zones, 2 resettlement sites, community meetings and in district offices 	n/a	Present	n/a
Oral histories <ul style="list-style-type: none"> In 4 risk zones and in 2 resettlement sites With individuals and families 	<ul style="list-style-type: none"> Life trajectory Risk perceptions and impacts Experience of risk management programme 	Lifetime	11 recorded in-depth interviews, plus additional vignettes from household and office visits Repeat visits in some cases
Semi-structured household survey Convenience sampling in 3 risk zones, targeted at different geographic areas and types of housing	<ul style="list-style-type: none"> Social profile and livelihoods base Risk perceptions and impacts Experience of risk management programme 	Time of settlement - present	57 High risk zones 28 Medium risk zones
Semi-structured interviews with community leaders and key informants In 4 risk zones	<ul style="list-style-type: none"> History neighbourhood History risk management Key issues for the community 	Time of settlement - present	7
Semi-structured interviews with district officials Present and past	<ul style="list-style-type: none"> Processes of assessment and procedures Origins and history of programme Challenges to implementation Relationships with communities 	Beginning programme - present	33
Document analysis e.g. Programme documents, technical reports, legal transcripts	n/a	Beginning programme - present	n/a

Data analysis

Interview transcripts, notes and key documents were analysed using ATLAS.ti software, which enabled systematic coding according to certain themes. These codes were drawn both from pre-existing theoretical lines of enquiry (e.g. government influence on risk assessment) as well as inductive categories that emerged from the data (e.g. citizenship, an important aspect of the values and cultures that have shaped risk assessments in Bogota). Breaking down the data in this way was useful in order to find common themes and patterns but, as Maxwell warns, “fracturing and categorising your data can lead to the neglect of contextual relationships among these data.....a research question that asks about the way events in a specific context are connected cannot be answered by an exclusively categorising analysis” (p.89-90) (Maxwell 2009). Care was therefore taken to also preserve a full reading of the texts, after general themes had been identified through categorisation. Closed survey data was entered into Excel alongside summaries of the open data, so that responses concerning beliefs, attitudes and perceptions could be understood in the context of the different aspects of people’s livelihoods, differences in livelihoods across social groupings and the political status of different households (e.g. whether they were in a particular risk zone or included under particular risk management measures).

4.4 Research challenges and ethics

One of the major challenges encountered in conducting this research was gaining access to high risk zones and the trust of affected communities, which caused initial delay in starting the research work and influenced the content of the research. The three main sites for the research were in the same district (Ciudad Bolivar), for example, and all exhibited similar patterns of settlement (although the differences between them are discussed below). The challenge reflected both my own position as a foreigner new to the research context, but also the sensitivity of the research topic and ongoing issues of security in risk zones in the poorest areas of the city. The controversial and highly politicised nature of the resettlement programme meant that I was refused access by some community leaders. The very nature of the project also meant talking to people about illegal activities, and I was concerned to talk to people without the continuous presence of state officials. As well as pursuing formal institutional channels for site visits with district officials, I therefore also contracted

a local research assistant who was better placed to liaise with community leaders and could accompany me on visits. He arranged for us to be accompanied in two zones by the so-called *vigias* (or watchmen), who were local residents employed by the district to maintain cleared risk zones. Only in the third site of *Brisas de Volador* - where I met families independently through the work of a local children's NGO - was I able to build up strong enough ties with community members that I visited on my own, and went repeatedly to the site over the course of a year to follow the risk management process. Throughout the research I had to balance security concerns with the demands of the research. A fourth site was abandoned after two visits due to security concerns, and work was curtailed in the third site of *Caracoli* for several months after a murder in the neighbourhood mid-way through interviewing made it prudent to leave. However, I refused a police escort in the *Altos de Estancia* barrio, given that we had arranged for *vigias* to accompany us and I felt a police presence would prejudice the research.

In addition, I was advised to leave communities before nightfall, which meant travelling back to the centre of the city by mid-afternoon. This affected the sample of people we were able to interview, as people who were working often worked in the north of the city (1-2 hours away) and therefore left early in the morning and were not back until the evening. In response, we tried to vary the days on which we interviewed (including weekends where possible) and made multiple visits to the same areas. However the profile of respondents was undoubtedly affected. In addition, the parts of the zones re-settled by displaced groups were regarded locally as more insecure, and we had less access to these areas.

In terms of the influence of these considerations on the content of the research, in general people talked frankly and on the record about activities such as illegal settlement and illegal electricity tapping, for example. However, I did not press directly about the activities of local security groups, both for the safety of respondents as well as my own in the zones. Instead, I relied on volunteered information to draw conclusions about the influence of these groups. This limited the analysis. The fact of being a foreigner with perceived resources (and the commonality of being surveyed by the government for means-tested social programmes) also affected information people gave about their wealth status, and I

noted people downplaying responses about goods they owned, presumably to emphasise their poverty. Having local research assistance helped to combat this. In general, I attempted to triangulate the information I was given by asking repeat questions across interviews with different respondents and verifying factual information against formal documentation.

Another challenge related to the social flux of the zones which meant that, over the one year period of the fieldwork, informants often moved on, either voluntarily or through the formal resettlement programme. However, this formed part of the research story, and I built into discussions with remaining community members questions about who was able to leave, and why. In one case where I had developed strong ties with a particular family I was able to speak by telephone with a family member who had left the zone, and visit her in her new home.

Because the research concentrated on interviewing households in the risk zones themselves, there was a strong possibility of bias in the sample towards groups excluded from risk management operations. To counter this, interviews and oral histories were also taken in two resettlement sites, one a community-led resettlement project and the other in the case of a woman resettled by the district, whose name was passed to us by a district official. Additional questions were included that probed what factors enabled these people to access resettlement programmes (see Chapter 7).

Finally, in terms of the community-level fieldwork, although focus groups have been a key method for vulnerability and livelihoods research, this was practically difficult in this context, where communities were fragmented by resettlement programmes and people's working patterns meant that it was possible only to convene groups at weekends, in precious leisure and family time. Where I did attend meetings called by community leaders, diverse viewpoints were often crowded out and meetings only attended by small groups close to the community leadership. I therefore decided against using focus groups as a formal strategy for the research, focussing instead on household interviewing. However, where they did occur, I did attend community meetings and interviewed groups of neighbours as well as individual households, recognising the need to account for social dynamics as well as the personal

worldviews revealed through individual and household interviews (Bauer and Gaskell 2000) .

In undertaking district-level interviews, a key challenge was a bureaucratic culture in which it was common to rely on citing formal regulations and norms in response to interview questions, and therefore difficult to probe underlying social and political dynamics. In addition to interviewing officials in post, therefore, I sought contact with officials who had formerly worked in the risk zones and who could provide a more open, as well as historical, perspective on the activities of the risk management programme. These interviews also often took place in more informal places than the district offices. Site visits with district officials were also useful in providing a freer context for discussion.

The principal ethical issues that arose were those of remunerating interviewees for their time, and of gaining their consent to be interviewed, and in some cases to be audio recorded. As regards the first issue, payment for interviews, after consultation with local researchers and my research assistants, I decided against such payments. I concluded that payments would set an awkward precedent for local researchers, and would alter the interviewer-interviewee relationship. With regard to the second issue of informed consent, each interviewee was informed of the aims of the project and how the material would be used (with interviewee names anonymised in data reporting). I asked to audio record long narrative interviews for my own textual analysis and so as to follow up on any language issues that arose in the interview (although I speak fluent Spanish and had worked before in an urban Latin American context, there was a tendency in community-level interviews for local jargon and slang to be used). Interviewees were informed before the interview took place that the audio recording would only be available to myself and a transcriber, and were given the option to decline the recording if they wished.

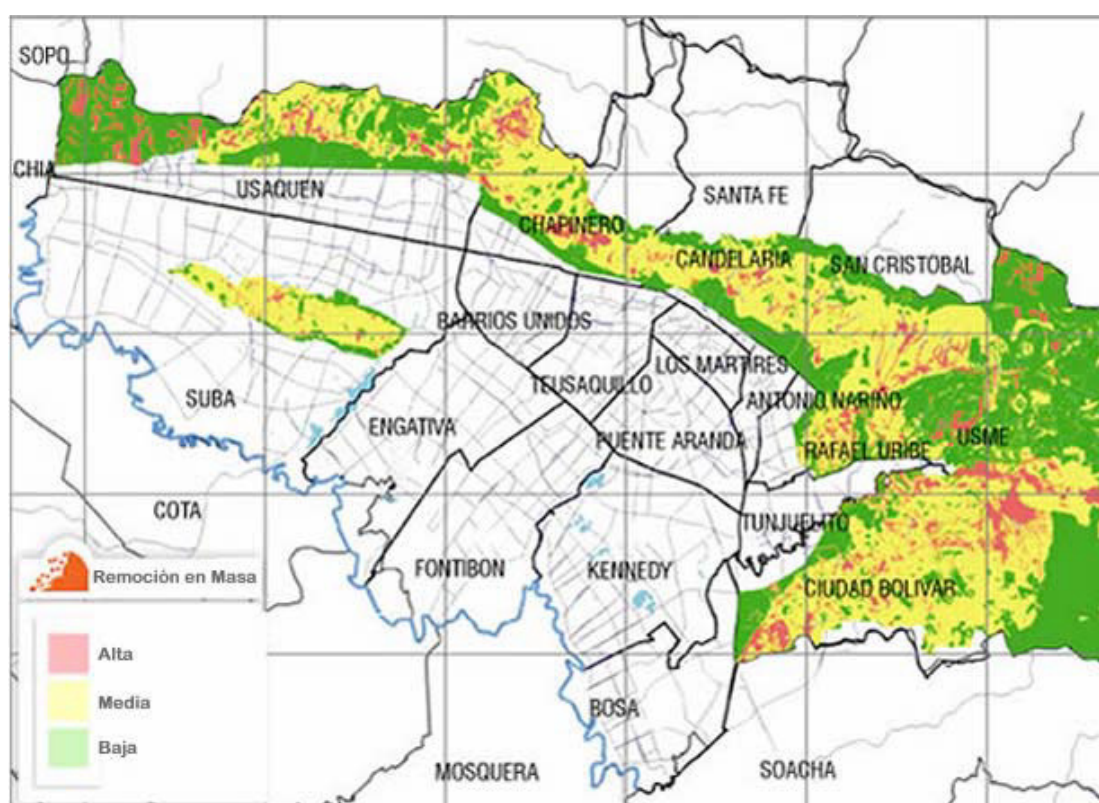
4.5 Research context: the *ladera* programme, Bogota, Colombia

As mentioned, the city of Bogota was chosen as the case study site for the research as it has a long history of state disaster risk management interventions in the city's informal settlements, informed, according to the World Bank, by some of the world's most detailed records of risk and vulnerability (Dickson et al. 2010). Multiple disaster risks are mapped and scaled in severity by the city's engineers,

including landslide risk. The *ladera* (or hill slopes) programme focusses on the 11,500 hectares of city land that extends up the hillsides to the east and south of the city centre, of which 910 hectares is assessed to be at ‘high risk’ of landslide damage, affecting thousands of families in the lowest socio-economic brackets, who live predominantly in informal settlements³¹ (Mayor of Bogota 2006).

Figure 1: Landslide risk map for the city of Bogota

The red zone depicts the high risk area, yellow medium risk and green low risk.



Source: DPAE, Bogota

This urban ‘hazardscape’ is described in terms familiar to vulnerability scholars of disasters and climate risk, that areas prone to a physical hazard (due to steep slopes, particular geomorphologies and the presence of old quarry sites) are occupied by economically and socially marginalised populations living in poor quality housing with poor access to public services (with their marginalisation driven by the absence

³¹ Although exact numbers should be treated with caution, as they vary wildly between official documents. In 2005, the Caja de Vivienda Popular (Housing Agency, responsible for the resettlement programme) put the number of dwellings in non-mitigable high risk zones (for all types of disaster risk) at 8405, twice the number estimated in 2000 (Caja de Vivienda Popular 2005). Chapter 5 touches on how such numbers have become part of the state politics of risk management itself.

of particular entitlements, such as the inequality of access to affordable urban housing and land, as well as the political economies of the labour markets into which people are inserted). Water filtration exacerbated by the lack of formal water supply and drainage and bi-annual rains most often trigger landslides that threaten both life and property.

Despite nearly two decades of state risk assessment and intervention through infrastructure works, the resettlement of communities away from high risk areas, community education projects and new land use policies, large numbers of families still remain vulnerable and illegal settlements in these areas continue to grow (Dickson et al. 2010). Landslide disasters are an ongoing occurrence during the rainy seasons. While resettlement has certainly enabled some groups to move away from the zones, both pre- and post- the occurrence of disasters, the process has often been marked by significant tension between the state and communities, and long delay. *“In some communities they love us, some hate us”*, a social worker in the DPAE reported to me in an interview. In the past, she herself was held hostage in a building for an hour by a community in protest. *“It is very difficult to get people out of these zones”* she continued (DPAE Social Management Team – June 2010).

4.6 Study sites: the landslide risk zones of Ciudad Bolivar, Bogota

The three principal study sites for the research were all sited in the district of Ciudad Bolivar, in the south of the city³². Of all the districts in Bogota, Ciudad Bolivar is one of the most marginalised – it has the second highest proportion of citizens classed in the two lowest socio-economic strata, and this without including those in informal settlements (Alcaldia Mayor de Bogota D.C. 2004). The study sites all shared – in common with other peri-urban informal areas of the city – a history of unplanned development through migration, by people violently displaced from rural conflict zones and moving away from economic hardship (both from other parts of the city as well as from the countryside), with the predominant wave of settlements occurring in the 1990s. The majority home owners (rather than renters or squatters) had bought illegally from *‘piratas’*, or the main protagonists of informal land development in Bogota, who were land owners or occupiers who sub-divided

³² The fourth site, Nueva Esperanza, lay in a different zone, Rafael Uribe Uribe. Two visits were undertaken to this zone before concerns were expressed by my research assistant about the level of insecurity in the zone, and fieldwork in the site was stopped. The interviews undertaken on these visits nevertheless informed the analysis of Chapters 5-7.

unoccupied areas and sold off the plots with an informal title document (known as the *promesa de venta* or ‘sale promise’)³³. However, the three zones also have distinct histories and differ in geographical scope, despite being subject to the standard procedures and operations of the *ladera* programme.

Figure 2: Map showing location of Ciudad Bolívar district, Bogotá



Source: www.bogotamiciudad.com

a. Brisas de Volador

The high risk zone situated within the barrio of Brisas de Volador affected an estimated 1000 people living on a steep slope above a main road, but covered only a small area, of around 7 hectares³⁴. Part of the zone included a disused quarry cut into the hillside. The barrio had been settled from the late 1990s, with the first risk assessment carried out in the zone in 1998. A concerted evacuation into resettlement had taken place in 2005, which, official documents indicate, was prompted by a court case brought by a small group of inhabitants of the zone to demand resettlement. The court case concluded in 2004 with the ruling that risk management agencies should update their risk concepts for the zone, and led to new inclusions in the resettlement programme.

³³ And often provided credit for the purchase, as well as in some cases arranging basic services for the plots.

³⁴ Estimates from 2008 according to the latest DPAE risk analysis ‘concept’ for the zone. Source: Base de datos para legalización, April 2012, SIRE, Bogotá.

At the time of fieldwork³⁵, in the central part of the zone, the original inhabitants of the upper part of the barrio had been resettled, but not those below. Meanwhile, near to the quarry the land was destined to be re-forested. On the opposite side, residents reported being under an eviction order brought by the original landowner against a group of inhabitants both within and without the high risk zone³⁶. In general, although local inhabitants reported the usual state visits to the zone, Brisas was not a large or important enough area for risk management agencies to get involved; although there were recurrent landslides there had never been a major ‘event’ on the scale of the other high risk areas studied. Officials never mentioned the area and there were few public documents related to it. The area had previously been part of a ‘red zone’ for crime and violence reduction and inhabitants reported ongoing operations of paramilitaries in the area, which affected attempts at community organising (although those under the eviction order did associate with the local junta, unlike other groups). The high risk area was excluded from the legalisation of the wider barrio, which took place in 1999, and people in the area retained informal land titles and organised their own provision of services, illegally tapping water from the tank belonging to the neighbouring barrio above. Community informants reported that the Mockus government had started to provide drainage to the area but stopped when the high risk classification was issued. This had been only partially extended by a community drainage system cut out in one part of the area by a group of longer term inhabitants.

³⁵ In the rainy season after the fieldwork had been completed – 2010-2011 – a major landslide occurred in Brisas affecting around 60 families, who had to be evacuated.

³⁶ And fiercely resisted by the inhabitants, with the support of the Junta de Accion Comunal. See <http://www.desdeabajo.info/ediciones/item/475-%C2%A1el-desalojo-no-pasar%C3%A1-brisas-del-volador.html> for coverage of a transport blockade in protest at the eviction, and the rough treatment of protestors by the local police.

Figure 3: Photograph of the Brisas de Volador risk area



Source: author, 2010

b. Altos de Estancia

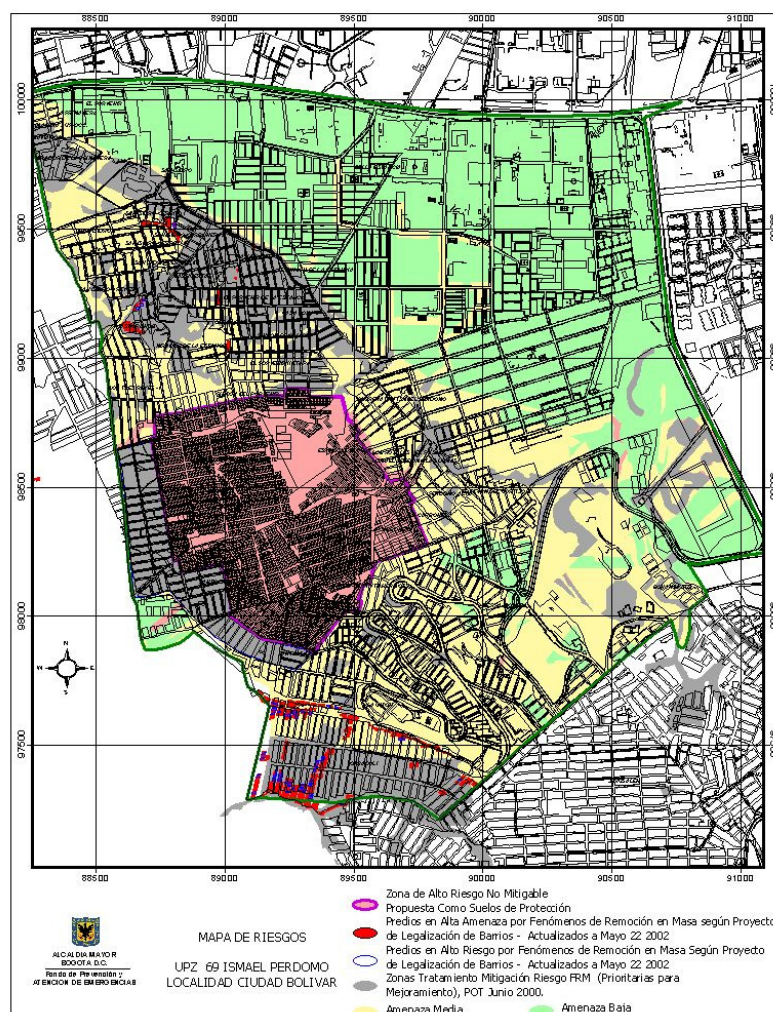
In contrast to Brisas, the area of Altos de Estancia is reported to be the largest urban landslide zone in Latin America, and is the largest high risk zone in Bogota, affecting a total of 15 barrios and around 100 hectares of land. The extent of the disasters that had occurred in this zone from the late 1990s – with hundreds of people affected by four major landslide disasters to date - made it a site of importance for the municipal government, deserving of special mention in strategic government planning documents, such as the city plan.

In Altos, a history of mass evacuation also sits alongside a history of community-organised contestation in a manner that has not occurred in Brisas de Volador or Caracoli. By the time of the landslides and production of the first ‘risk concepts’ for the zone, communities were already organised around the legalisation process promoted by the Penalosa government. Many of the barrios were in fact legalised in the 1999-2000 period, legalisation that was then rescinded by municipal decree when the zone was formally declared as ‘high risk’ in 2002. The experience of collective protest is informative as historical account, and these early protests shaped the nature of the risk management system operating today.

The Altos de Estancia zone has also been the site of sophisticated spatial planning to regulate risk in the area. The high-risk zone is known by officials and local inhabitants as the 'polygono', or polygon, because of its shape. From 2003 on, within this polygon, the state has demarcated three different types of area for action according to their prioritisation by risk 'level': Phase One, subject to evacuation and total resettlement and now officially 'emptied'; Phase Two, undergoing resettlement and Phase 3, 'medium' risk and being monitored (through the use of technical instruments and house visits by engineers). At the time of the research, fringes of the existing zone were described by state officials as among most critical zones for landslide management in the city (with emergencies declared in the barrio of Tres Reyes, where we were able to do field visits and surveys). In addition, risk management agencies were pushing hard to complete the resettlement phases and, with the active involvement of the district environment ministry, promote a 'greening' agenda, with the aim of turning the area into a 'recreational park'.

Figure 4: Risk map of Altos de Estancia

The red zone depicts the high risk area (the ‘polygon’), yellow medium risk and green low risk.



Source: DPAE, Alcalde Mayor de Bogota D.C.

c. Caracoli

The third site, the barrio of Caracoli, situated on the very border of Bogota with the neighbouring settlement of Soacha, contained four areas deemed high risk: on the steep slopes to the top of the barrio (where earth and mud ‘creep’ took place from above, but also undermined levelling undertaken under properties to provide a flat surface for construction), in two lower sites of gully erosion running down the main slope (also exposed to flooding) and on a slope overlooking the main stream channel at the bottom of the community. The population of the high risk areas reportedly ran to around 520, of which an estimated 150 had been resettled, mainly from the upper areas (Secretaria de Habitat 2010). Landslide events had occurred in 2006-2007 and

then again in 2010, during the fieldwork. Known for high levels of insecurity, the neighbourhood had been legalised in 2007 and, more recently, designated a priority zone for improvement by the municipal government, although the four areas demarcated as at high risk were exempt. As Chapter 5 discusses, those in the risk zones retained only community drainage and paid a minimal amount to tap water from a central pipe.

4.7 Conclusion

This chapter has highlighted how, in order to investigate new directions for vulnerability research in an urban context, and answer the question of whether new approaches are needed to understand vulnerability in informal urban settlements, new, more open methods are needed, even in the context of traditional case study-based research designs. It has outlined how I tackled the question of how states control for risk and vulnerability with empirical work rooted in a historical, institutional analysis of a state risk management programme in conjunction with household-based interviewing and survey work which aimed to uncover the determinants of ongoing vulnerability and risk. The chapter has also discussed some of the challenges to doing this work in an informal, urban setting and how this shaped the overall analysis of this thesis. Against the brief backdrop to the case study and study sites provided here, it is to this analysis that the next three chapters turn. Chapter 5 examines the state co-production of landslide risk assessment with the history, values and cultures embedded in the practices of governing in informal risk zones. Chapter 6 explores the meanings and values in which societal responses to risk assessment are couched in turn. Chapter 7 discusses how agency and access function to transform the environmental risks faced by informal urban communities.

Chapter 5

States of Risk: The Co-production of Landslide Risk Assessment in the Informal Settlements of Bogota, Colombia

5.1 Introduction

Using analysis of Bogota's landslide risk management programme, this chapter shows how knowledge about risk used in government programmes influences and is influenced by the politics and practices of government in ways that reconfigure the occurrence of vulnerability and disaster. Reflecting the theoretical arguments of Chapter 2, the findings presented in this chapter demonstrate how a government approach to risk management informed predominantly by the conception of risk as a physical impact overlooks critical aspects of the social context, and the ways in which risk is socially driven. This ultimately limits the state's efforts to control vulnerability. While this much is well laid down in existing literature about risk and vulnerability, the chapter presents further evidence to show how the political as well as social context is important to the occurrence of vulnerability and disaster risk. It flags the importance of understanding how urban governance works – in terms of both the workings and practices of the state in informal settlements, and the knowledge claims that underpin these – in order to understand how and why risks occur. This takes us onto the terrain of Chapter 3, which set out how scholarship in Science and Technology Studies, political science and urban studies might lead us to think about how the state, state politics and state knowledge about risk function together to influence how (urban) states act on risk in informal urban settlements and with what consequences. This frame is applied here.

The chapter sets out the findings from the case study of Bogota's landslide risk programme in two parts:

The first section (Section 5.2) focusses on how the politics and practices of the city government have influenced the production of knowledge used by the state to manage landslide risk in the city's informal settlements, in particular in the three landslide risk zones where the fieldwork was concentrated. The first part of the section explains how technical assessments of physical risk came to predominate in the context of the city's politics but also reinforced aspects of the political culture, in ways that have been exclusionary of local perspectives on risk and of understanding the social drivers of vulnerability to risk. The second part of the section, drawing

more explicitly on scholarship in Science and Technology Studies (STS), advances this reading by showing how assumptions about the causes of and responsibilities for risk built into risk assessments themselves are influenced by the political and social context of urban informality. Politics, therefore, is lodged in the very processes that govern how risk is defined. The third part of the section extends this analysis further to show how knowledge about risk is in fact co-produced alongside particular practices of government that govern who is to be defined as at risk, and how they are to be treated.

The second section (5.3) opens up the idea of co-production in the context of the urban governance of risk by showing how the practices of urban governance in informal settlements shape how knowledge generated through risk assessment is deployed. It thereby unpacks how both the ‘natural’ and the ‘social’ are produced together. In the context of the *ladera* programme I show how a politics of inclusion and exclusion has functioned to determine exposure to risk, and how, utilising ideas from urban studies about modes of governance in informal areas, this has reflected government practices of ‘flexibility’ and ‘un-mapping’ alongside formal government mapping and regulation. The final part of the section takes a broader view of state practice, examining both what the case study illustrates about how the ‘urban state’ operates (or not) as a singular, purposive agent and how it operates in a hybrid fashion, connected and unconnected to non-state actors in the particular context of informal urban areas. The analysis shows how coherence, tension and contradiction between the agendas of the different actors affect the occurrence of risk and vulnerability.

5.2 The production of knowledge about risk in Bogota’s *ladera* programme

This section illustrates how the ways in which knowledge about risk and vulnerability are produced in government risk management policy influences how risk and vulnerability unfold among hill-side communities in Bogota, Colombia. Divided into three sub-sections, the first exemplifies how a physically-based paradigm for assessing risk overlooks the structural and social causes, agency and coping strategies and local perceptions and meanings of risk, in ways already discussed by vulnerability analysts (Blaikie et al. 1994; Forsyth 2003), but highlights further how this reflects, enables and sustains a particular state politics (Scott 1998;

Mustafa 2005). The following two sub-sections take the analysis further, however, interrogating how this knowledge system about risk is constituted in ways that are deeply influenced by particular political assumptions and, finally, ‘co-produced’ alongside particular practices of government (Jasanoff 2004) in ways that create new distributions of vulnerability in high risk zones.

5.2.a Political influences on knowledge: The politics of technical diagnosis

This section illustrates how the project of assessing landslide disaster risk in Bogota’s informal settlements has reflected an ongoing geophysical/technocratic paradigm in disaster research and management (see Varley 1994; Blaikie et al. 1994; Pelling 2003), with its emphasis on the prediction and reduction of hazards, a narrow approach to vulnerability as exposure and a focus on what Varley, citing Hewitt and others, refers to as a ‘behaviourist’ element to the paradigm, or an emphasis on disseminating knowledge and information based on state-based risk assessments. The way in which knowledge about risk is constituted within this paradigm is (as in Scott), both simplifying and abstracting of the social and political processes that contribute to that risk. Furthermore, politically, it has provided a system of ‘legibility’ which has allowed for particular forms of territorial planning, and both reflected the authority of and conferred new forms on authority on the state.

Disaster risk assessment in political context

Existing analyses show that the impetus for and instruments of Bogota’s risk management programme have their origins in both the national and international domains, before they are taken up in the city itself (Zeiderman and Ramirez 2010; Zeiderman 2012; Robles Joya 2008). In 1989, a national urban reform law obligated municipalities of a certain size to compile inventories of risk exposure and undertake relocation programmes if local mitigation was not possible. Bogota was the first city to concretise this, with the Castro administration of 1994 introducing the first analysis of risk distribution. However, it was the administrations of Mockus (1995-1997 and then 2001-2004) and Peñalosa (1997-end 2000) who gave the system of risk analysis and management its full form (Zeiderman 2012; Robles Joya 2008). The Mockus and Peñalosa administrations marked a critical juncture in Bogota’s political history. They are credited with driving a transformation in its development and management that altered the city both physically and socially through policies guided by principles of equity, integration and security (Berney 2010). There was

continuity in policy across these administrations, although differences in priority, vision and approach, with Mockus focussed on protecting life and security through the construction of new social behaviours and norms while Peñalosa focussed on the physical reconstruction of the city itself (ibid.).

Risk management was undoubtedly a political project, the history and values of which – as I go on to develop – infused the very project of constructing knowledge about risk. However, in the interactional sense of co-production, or the way in which knowledge is re-organised after the fact, its implementation was to be inherently apolitical, with risk assessment the domain of scientific experts. This reliance on expert knowledge in the history of Bogota's transformation is explained by Berney: "The (re)emergence of the professional class in city planning and design issues became a reflection of the deep-seated tradition in Colombia of expert-led government. Even with the decentralization of government power to the local level, much of the power to act remains with the powerbrokers and the experts, not with the users" (p.544)³⁷. Salcedo and Zeiderman reflect on how Mockus's political project arose from the ideas of a group of intellectuals and experts who believed in applying knowledge and science to create a new form of government that would show results, through both statistics and technical argument (Salcedo Fidalgo and Zeiderman 2008).

My own interviews also revealed how technical knowledge provided a means to manage political difficulties, as high risk areas were excluded from the legalisation programmes championed by both mayors. Some neighbourhoods or *barrios* had been slated to be legalised but were then the subject of risk assessment studies, some of which concluded that they should be excluded. Although the process had not been completed, the initiation of the process gave people the expectation that they would be able to live there. In other *barrios*, the legalisation process was complete, but the onset of a landslide triggered a new technical study that declared it uninhabitable. In these cases, the state rescinded the legalisation, declared the land 'protected' state land and attempted to resettle its inhabitants. Given the stated aims of the respective mayors – and the political capital at stake – these processes were contentious and often contested by communities, who had organised for the purposes of the

³⁷ This technical bias in state planning is also reflected in Asher and Ojeda's analysis of Colombia's territorial zoning policies, see Asher and Ojeda 2009.

legalisation process. Having technical criteria with which to make the decision was seen as a way to deflect criticism and contest (Disaster Risk Consultant, Ministry Environment – January 2010; former *Ladera* Programme Co-ordinator, DPAE – June 2010).

i. The risk assessment process: calculating risks and vulnerabilities in the *ladera* programme

In this political context, the actual process of assessing risks in the city has remained the domain of engineers, who seek to demarcate spatial boundaries of high, medium and low level risk at the household scale. These can then be mapped and governed³⁸. In the landslide risk programme, engineers from the disasters agency evaluate the likelihood of physical threat according to the geological and slope characteristics of the area, hydrology (rainfall and ground filtration such as public service networks) and seismic activity. This is overlain with a Physical Vulnerability Index based on an assessment of the quality of the housing infrastructure, and therefore the likelihood of damage from the different types of possible hazard. Combined into an index of risk, risk levels are set according to the likelihood of losses to housing and the proportion of people affected falling between certain ranges. The assessment is therefore probabilistic, and futuristic.

³⁸ The city produces both threat maps and risk maps. *Threat* – or the likelihood of physical hazard – is mapped at the city scale, and forms the basis for more detailed maps of risk at lower scales. Such *risk* maps are discussed here, and reflect the likelihood of hazard multiplied by the extent of vulnerability.

Figure 5: Landslide risk map for the risk zone of Caracoli, Ciudad Bolívar



Caracoli landslide hazard map, 2006 Source: Lopez, D.H. 2007.

Red shading denotes the high risk areas.

Within high risk areas, risk assessment is further used to distinguish who has priority in the government resettlement programmes that apply in the area, ‘rendering technical’ highly contentious and often disputed decisions. Introduced in 2003 (at a critical historic juncture for the programme, discussed further below), in this assessment process engineers judge whether houses have technical priority 1 (facing either partial or total housing loss in an emergency) or 2 (houses affected by landslides without possibility of mitigation) based on the physical infrastructure of houses in high risk zones.

The first key point to make about this schema is the absence of knowledge about broader patterns of social vulnerability, possible coping strategies at the household level and questions about social (including institutional) causation. This reflects the nature of state intervention, which is heavily focused on reducing exposure to hazard through resettlement policy and providing infrastructure to mitigate physical risk, but has not addressed questions of socio-economic sensitivity to risk and its causes (in terms of wider issues of poverty and inequality, manifest, for example, in the lack of a broader housing policy affordable and available to the poorest groups)³⁹. In terms

³⁹ Within this framework, the state resettlement policy caters only to those in the lowest socio-economic strata – reflecting their vulnerability – but social vulnerability assessment is not a feature of risk analysis per se. In the same vein, in certain evacuations – such as those undertaken in Nueva Esperanza and Altos de Estancia – particular social groups were prioritised on account of their vulnerability, but this appears to have been a discretionary response and one that has occurred in light

of the localised causes of landslide events – informal water supply and drainage being a key factor – while technical and programme documents recognise the role that this plays, subsequent sections highlight how and why this has often remained unaddressed in practice, and how official state narratives often transfer the blame onto communities themselves citing their lack of care for the environment⁴⁰.

Despite this, a huge amount of social data is collected from households (see Poveda Gómez 2011 for a full description of the social variables collected from households in the Nueva Esperanza risk zone, for instance). However, social analysis takes place in order to facilitate the resettlement programme and is collected by the Caja de Vivienda Popular, the state housing agency charged with resettlement⁴¹. For example, in Nueva Esperanza, a socio-economic survey from 2008 applied to all households in the zone asked about the health status of individuals and their affiliation to the public health subsidy scheme. On the basis of the findings, the Caja de Vivienda Popular team recommended that the District Health Department include those houses without the subsidy, that people in temporary resettlement sites receive medical attention at their nearest centre, and that information about the final resettlement destination be passed to the health secretariat to ensure proper registration in the health system (Caja de Vivienda Popular 2008). The health status of those remaining – both temporarily and permanently – in the high risk zone, the links between health and risk (across all levels of risk zone) and possible health-related measures to protect particular households in risk zones is subsumed in the focus on moving people away from the area.

The second key point to make about this mode of risk assessment as a knowledge system is the way in which it has been closed to localised conceptions of risk, in a manner also reminiscent of Scott's emblematic modernist planning schemes (although as I discuss in the subsequent chapter this local knowledge should not be

of an emergency, but not as a component of pre-existing vulnerability assessment per se (for mention of this practice in these cases see Poveda Gómez 2011; Robles Joya 2008).

⁴⁰ To give one example, in a court case brought by inhabitants of the barrios of Altos de Estancia against state agencies for failing to protect their rights, as part of its defence the state water company claims ongoing earth slides and water run-off are due to lack of care by the community in disposing of rubbish, which blocks pipes (Court proceedings in the case of Tutela N 041-06, Juzgado Noveno Penal Municipal de Descongestion, Bogota D.C., 12 June 2006).

⁴¹ This is in accordance with the stipulations of the 2000 city land zoning plan that a socio-economic study be undertaken to identify the impacts of resettlement, but also in accordance with 'safeguards' required by the World Bank, a funder of Bogota's project, for their resettlement programmes.

conceptually bounded and romanticised as a result). The aim has been to project, even enforce, the results of risk assessments, with no active involvement by those affected in the assessment process or the design of the programmes that follow⁴². Communicating risk according to risk assessment has become a major strategy of the programme, both through the erection of billboards in high risk zones and in the day-to-day task of state officials visiting households. According to many state officials I interviewed, a major block on the programme has been that *‘people don’t see risk’*, or that they only do so in the event of an emergency or if their houses are affected. Getting people to ‘see like the state’, however, requires the adoption of a future-oriented, aerial viewpoint. *“The problem”*, one official told me, *“is that people are not able to project what risk is”* (Housing secretariat official formerly involved in Altos de Estancia evacuation – January 2010). Official documents from the Altos de Estancia project belie the same notion: citing inhabitants from the zone who say they have seen no landslides for ten years, no land movements and no cracks in their houses, the report concludes that “from these declarations we can establish that there exists a low perception of risk” (p.80) (DPAE 2009). It goes on to assert “residents think that problem will solve itself with little, isolated mitigation works which doesn’t take into account the environment in which landslides develop” [and which the state is able to assess] (p.24) (DPAE 2009).

⁴² In general terms, the style of government followed in Bogota in recent decades has been one that Berney argues has privileged ‘progress over participation’ (Berney 2010). Community meetings I attended became a forum for explaining district policy and procedure, and one official told me his team preferred to avoid community meetings *“as people just come to vent their anger, which is a waste of time”* (Caja de Vivienda official – June 2010). Where participation has been formally encouraged in the *ladera* programme it has most actively involved encouraging the communities remaining around the high risk zones to participate in schemes to monitor new settlement in the zones. Strategies of participation also often involved an agenda pre-set by state agencies. In documents produced for the Altos de Estancia programme, the DPAE concludes that there is the need for participation of people living in Phase 3 of the programme, who are currently under risk ‘monitoring’. However, it goes on to link this with the need to find a development angle to the programme, and a proposal to offer subsidies for housing improvement, in this case for structural reinforcement, which it says will be of ‘great relevance’ to the population (p.103) (DPAE 2009). The following chapters discuss how communities and households have sought to open up political space to discuss their concerns about risk assessment and management.

Figure 6: Photo of a risk communication sign, Altos de Estancia



The sign reads 'Danger: High Risk due to Landslide'. Source: Author, 2010.

In fact, the state has fought fiercely to defend its authority to define risk over and above conflicting local interpretations. In a 2004 court case brought by a group of inhabitants of Brisas de Volador against the municipal disaster agencies, the inhabitants appealed to be resettled due to the effects of landslides. In its formal response, the risk management agency makes a striking statement about who is to judge risk in the sector, asking the court to “disregard the pretensions of the claimant given that the competent authority to establish the level of risk was this institution and not the claimant.”⁴³

Risk assessment has therefore enabled and sanctioned new forms of authority to decide who can be designated ‘at risk’ and who will be entitled to new forms of risk-related government support. Reflective of the broader political project underway in Bogotá, which was critiqued as a form of mass pedagogy, officials cast themselves

⁴³ From court documents in the case of an Accion Popular brought by Marco Tulio Ararat Sandaval and others against the FOPAE (disasters agencies), October 8 2004. The documents can be found at <http://190.24.134.67/SENTENCIAS/ACCION%20POPULAR/2004/> (Last retrieved August 27 2012).

as educators in this ‘risk campaign’ in order to persuade people to leave high risk zones – telling families that their houses would fall down, or that they should inform themselves of the science (DPAE official – January 2010; Field visit with Caja de Vivienda officials – June 2010). In Altos de Estancia, to prevent new settlement, a recorded history of the nature of the soils and the resettlement programme was played on the buses “*to teach people that the soil was not apt for urbanisation*” (former official responsible for resettlement policy – June 2010)⁴⁴. Beyond persuasion, however, officials complained of the way in which these interactions become ‘a negotiation’, as if the state were a private enterprise. “*We have to convince people we are not a housing company*”, says one Caja employee (Field visit with Caja de Vivienda officials – June 2010). Behind this lies the sentiment that the state is not to be bargained with. Negotiation, according to one former senior official, reflects the fact that the state has ‘*no control*’ in these zones (former planning official – January 2010)⁴⁵.

In Bogota, therefore, (as discussed for other cases of disaster risk management in cities, see, for example, Rebotier 2012; Mustafa 2005) a union of technocracy and hierarchy has certainly generated a politics of risk that has been both reductive of the social causes of risk and exclusionary of social perspectives on risk and risk management. The rest of the chapter, however, argues that underneath this reading of the knowledge politics at play in the city lies a set of more complex dynamics that further influence how disasters and vulnerability occur. Understanding this necessitates opening up the practices of knowledge and the practices of the state to further analytic scrutiny. The next section illustrates how the practices of risk assessment, despite their technical construction, embody not a value-free science, but one imbued with a set of particular political values.

⁴⁴ The manner is again reminiscent of Scott’s characterisation of the politics of agrarian resettlement in Tanzania: “Educating the people did not mean asking their consent, it meant telling them that they had to move and why it was in their best interest” (p.234) (Scott 1998).

⁴⁵ While those eligible for the programme who choose not to go cannot be forced, they can be issued with an evacuation order, after which point the state is no longer responsible for their welfare, and those in breach of programme stipulations can be evicted. See Gupta 2012 for a discussion about how coercion and well-being work together in development programmes.

5.2. b Political influences on knowledge: Notions of causes and responsibility in the drawing of risk boundaries

Disasters analysts have noted how the way that risk assessment exercises fix particular physical phenomena can lead to partial solutions as such phenomena are inherently dynamic (Mustafa 2005). Yet, as Zeiderman also notes for the Bogota case (Zeiderman 2012), the agency responsible for measuring risk, the DPAE, recognises that landslide phenomena are dynamic, with monitoring exercises in the Altos de Estancia zone to keep track of the physical evolution of landslide events and an official requirement to habitually re-undertake risk assessments across all zones. Nevertheless, both during and subsequent to my fieldwork, landslides occurred that affected people and property outside the demarcated high risk zones and resulted in the re-classification of the boundaries of high risk areas, in all cases expanding their scope⁴⁶. As this section shows, these issues of boundary classification not only relate to a technical diagnosis of a physical event, but illustrate how, as discussed in Chapter 3, assumptions about institutional behaviour and politicised notions about responsibility with regards to the causes of landslides are built into, not screened out of, the risk assessment process itself (Lane, Landström, and Whatmore 2011; Wynne 1996).

One example from the third risk zone I studied, that of Caracoli, on the very southwestern border of Bogota, had its first technical assessments of landslide risk in 1999-2000. These recommended that the neighbourhood be provided with basic infrastructure to reduce risk (such as wastewater and storm drainage) and that a system of land zoning be introduced, with resettlement undertaken for those in the 'highest' risk areas. Importantly, these considerations were built into the ways in which levels of risk were graded across the area, with a 'medium' as opposed to 'high' level classification reflecting the assumption that infrastructure upgrading could be undertaken which would mitigate levels of risk. However, this technical assumption failed to reflect the ways in which the institutional politics of the zone would actually preclude such interventions from occurring. In fact, Caracoli, despite settlement in the zone since the 1990s, had been officially designated as a forest conservation zone and the state and community remained in conflict over the legal

⁴⁶ During my fieldwork in 2010 emergencies were declared in Caracoli and in Tres Reyes, to the north of the Altos de Estancia high risk zone. In 2011 a landslide was reported in Brisas de Volador which affected houses in the medium as well as high risk part of the zone. In all cases, this expansion of the high risk zone led to new incorporations into the state resettlement scheme.

right of people to remain there. While this dispute remained unresolved, unplanned urbanisation continued and landslides became more frequent. In 2006 a landslide disaster in which several people died led the community to demand that the government take action to protect peoples' lives. This prompted a new technical assessment, which found that some of those households affected by the disaster lay outside of the 'high' risk zone defined in the earlier assessments. As a result, 'medium' risk areas were now upgraded to 'high' owing to both increased urbanisation levels and the physical deterioration of the landscape caused by the lack of adequate infrastructure. In this way, while the state addressed the need for physical risk assessment, the assessments themselves concealed the broader risk issue related to questions of institutional responsibility for risk mitigation in settlements whose legal status remained undefined (Sources: Lopez 2007; DPAE 2006; Duvan H. Lopez pers. comm. 2013).

Similar boundary re-classifications occurred whilst I was conducting my own fieldwork, triggered by new landslide emergencies. A disaster in Caracoli in June 2010, in which a rescue worker died, prompted a similar reassessment and again the incorporation of 'medium' risk zones into the 'high' risk area. As one of the engineers responsible for the technical studies told me, although the previous risk assessment had taken place just two years prior, the conditions of the soil had changed, with deterioration due to the on-going lack of a legal water and drainage system, and subsequent water filtration (DPAE official – July 2010). The issue this time was different, as by 2010 the status of the barrio had been recognised by the city government (with its legalisation in 2007). However, work to upgrade the infrastructure on the back of legalisation was only just underway at the time that I undertook fieldwork in 2010, despite the money reportedly having been allocated from 2008. The provisional and community systems of water and drainage that operated in the meantime unfortunately exacerbated erosion⁴⁷. While a provisional water service was ensured by the state on the basis that it had a duty to uphold people's right to water, this did not extend to drainage, compounding the problem. In conjunction, the state water agency has no mandate to repair community-constructed

⁴⁷ As reported by inhabitants of the zone. Technical risk assessments for the zone undertaken in 2006 also noted that 'non-technical' excavations – undertaken in the direction of the slope – aggravate erosion (DPAE 2006).

drainage. However, again, questions about institutional responsibility for risk mitigation are unaddressed in the assessments.

As well as making assumptions about how the state acts, technical assessments of risk also incorporate politicised assumptions about the responsibilities and capacities of individual homeowners to act to mitigate risk. The risk assessment process distinguishes between ‘mitigable’ and ‘non-mitigable’ levels of ‘high’ risk. Areas deemed to be ‘non-mitigable’, or where it is either technically unfeasible or too costly to undertake in situ mitigation, are earmarked for resettlement projects, whilst ‘mitigable’ areas might be temporarily evacuated or the use of houses restricted until the necessary works are undertaken. The responsibility to mitigate in terms of upgrading housing infrastructure (as opposed to providing large infrastructure works such as contention walls) is designated to be an action on private property that rests with homeowners themselves. In the case of the Caracoli, for example, the Technical Assessment Report of 2006 makes clear that “these actions [mitigation works] must be undertaken by owners of the lots, given that the DPAE [the disasters agency] does not have house improvement programmes and that it cannot intervene on private property” (p.54) (DPAE 2006). However, fieldwork in Caracoli as well as in the two other high risk zones found that such actions (such as stabilising cuttings in the hill slopes for construction) were widely beyond the financial reach of many households. In the Brisas de Volador high risk zone, for example, two households interviewed reported that putting in channels as recommended by engineers would mean missing work and studies, with one respondent saying that it could take weeks to dig out the mud at their own expense (Brisas de Volador – 14.03.2010 and 20.07.2010). The absence of such actions exacerbated risk levels for people who were technically excluded from resettlement because the risks had been deemed as ‘mitigable’⁴⁸.

This section has linked the ongoing occurrence of landslide disasters in risk zones to the assumptions built into risk classifications themselves about who is to take responsibility for the causes of the landslides. The following section furthers this analysis of how the political assumptions attached to state knowledge about risk

⁴⁸ State policy in this regard also became a point of contention in the 2004 judicial case brought by inhabitants of Brisas de Volador against the disaster management agencies. In the case the judge upheld the view that given the economic condition of the population, they could not be asked to assume responsibility for such measures (Source: <http://190.24.134.67/SENTENCIAS/ACCION%20POPULAR/2004/> Last retrieved August 27 2012)

influence on-the-ground vulnerability to those risks, using the idiom of co-production to conceptualise how such knowledge is harnessed to new political practices and discourses.

5.2.c *The co-production of citizenship and risk in the construction of vulnerability*

In this section, I argue that risk knowledge has not only embodied particular political assumptions but has been co-produced as part of an institutional (and political) project tied to the formation of a new urban identity for some of the city's poorest inhabitants, accompanied by new representations of and discourses concerning poor, informal urban populations. In this way, particular government practices have influenced particular knowledge practices.

These representations and discourses arise from the political and cultural ideas surrounding the project to transform Bogota described above, which have had remarkable continuity in the discourse of both programme documents and the common parlance of officials⁴⁹. In the recent political history of Bogota, these ideas took two – conjoined – forms. Firstly, for the Mockus administration, transformation entailed the creation of a new type of culture, a culture of legality where norms and rules would be respected (Salcedo Fidalgo and Zeiderman 2008). This 'citizens culture' aimed to generate a sense of belonging to the city and facilitate collective life, a process through which people would internalise norms of behaviour and eventually 'auto-regulate', leading to respect for common property and recognition of the rights and duties of citizens (ibid.). Berney highlights how the reconstruction of citizenship was linked to an identity of *Bogotantud*, or a positive identification with the city and fellow citizens (Berney 2010).

Secondly, the promotion of these socio-cultural practices was accompanied by material investment in changing the physical landscape of the city, through improvement programmes that implied particular modes of formalisation and state control of 'illegal' zones. Programmes of barrio legalisation and improvement and a

⁴⁹ Fundamentally a political discourse, it is nevertheless overlain in practice with elements of social and cultural discourses – and stigmas – that reflect and accompany the vast inequalities present in Bogota, principally between north and south, as well as between *Bogotanos* and the rest of the country. Officials involved in the day-to-day practice of the programme talk of people in high-risk zones as having distinct 'cultures': both a poverty 'culture' of expecting benefits from the state and avoiding payments but also one tied to having an indigenous identity, associated by one official with a "*malicia indigena*" or 'indigenous cunning' (although few community respondents I spoke to espoused this identity).

new approach to territorial planning were enshrined in the City Land Use or Master Plan (*Plan de Ordenamiento Territorial* or POT) of 2000, overseen by the government of Peñalosa. Risk assessment became integral to these, both because zones at ‘high risk’ were to be declared not eligible for legalisation and because, organisationally, risk management was implemented as part of improvement programmes⁵⁰. According to my own interviews with district officials, risk management was thereby seen as a “*way to consolidate development measures*” (former DPAE Director – April 2010). In turn, the POT enshrined the view of resettlement from high-risk zones as a social objective, of providing goods and services to all citizens and promoting equality in the city (Decreto 619 2000). It also promoted an integrated vision of the territory of the city, of which zones of ‘special treatment’ due to risk were part. From this perspective, risk mapping provided a new way for the state to ‘see’ parts of its territory – in most cases, these spaces were illegible to the municipal government as nothing was known about those who had occupied the city’s periphery, with new arrivals continuing to set up informal settlements throughout the 1990s. Control in these areas was therefore difficult. As Scott writes, the state did not just seek to understand these areas, it sought to shape them according to its techniques of observation (Scott 1998). Risk-related resettlement became an opportunity for the state to reorder illegal zones, with the POT declaring as a strategy “the conversion of the resettlement of the population into an opportunity to push urban ordering and improve conditions of life in the sector” (p.55) (Decreto 619 2000). This framing guided the Development Plans of future mayors: in Mockus’ 2001-2004 Development Plan resettlements of populations at risk of landslides and floods was declared a measure “integral to the improvement and reordering of sectors of the city of illegal origins” (Decreto 441 2001, cited in Robles Joya 2008). The ways in which these political values, identities and accompanying discourses infused the project of mitigating disaster risk remains critical to the practice of disaster management.

The section has two parts: the first explicates how the management of risk in high risk zones has entailed the remaking of citizens, livelihoods and landscapes, and the

⁵⁰ The DPAE (the Departamento de Prevención y Atención de Emergencias or Disasters Prevention and Attention Department) formed part of legalisation committees from 1997. Rebotier notes for other Latin American contexts how programmes for disaster risk and territorial planning have often been inter-linked (Rebotier 2012).

second shows how risk assessment has been accompanied by particular political stipulations concerning who is to be formally classified as at risk. I underscore here how this has legitimised and delegitimised, legalised and criminalised certain activities and populations in ways that have effected new patterns of inclusion and exclusion in high risk zones. The next chapter develops further how people have responded to risk assessment, as it arrives intertwined with these political assumptions and values.

i. New landscapes, new livelihoods

Risk-related resettlement evolved as an instrument to move people out of ‘risk’ zones but also a policy – congruent with the politics of the era - for ‘bettering the quality of life’ of their inhabitants and reordering informal zones⁵¹. Under this broad aim lay explicit political commitments related to the formation of citizens alongside the city. To give one illustration of how this has been replicated in the framing of risk management programmes, in a detailed project assessment from Altos de Estancia, the largest high risk landslide zone in Bogota, the objectives of the project are said to meet the aim of facilitating the ‘right to the city’ both through guaranteeing the right to life and bettering the lives of those evacuated thereby, critically, “constructing in this way citizens and city with a sense of equity” (p.126) (DPAE 2009). In this process of inserting people into new physical spaces – and also into new relationships with state institutions – state officials I interviewed talked about the accompanying transition of people from illegal to ‘legal’, informal to ‘formal’ and rural to ‘urban’⁵². Further, this required behavioural change on the part of the scheme’s newly-integrated and identified citizens, not only to integrate harmoniously in new districts, but also to assume new duties and responsibilities. In a DPAE publication from 2003 (during the second Mockus administration) documenting the official story of risk management in Altos de Estancia, the author

⁵¹ To understand the intensity of the engagement of the city’s social agencies in these zones, see p.74-78 in Poveda Gomez, which describes the wealth of programmes offered to those eligible for resettlement in the zone of Nueva Esperanza.

⁵² Decreto 94 of 2003, issued by Mockus, describes the movement of people into secure and legal housing as guaranteeing their ‘definitive insertion into the legal city’ (Decreto 94 2003). The notion is still alive in the common parlance of officials: in one interview, a DPAE official described the process of passing people onto the Caja de Vivenda Popular for resettlement (along with their ‘*ficha social*’ or the social data collected to identify them for resettlement) thus: “*you pass them from illegality to legality*” (DPAE District Co-ordinator – March 2010). The next chapter illustrates how inhabitants contested state ideas about their legality and illegality, revealing them to be much more ambiguous as categories.

propounds “Urban planning must become the principal instrument for improving the quality of life of *Bogotanos* who on feeling part of a citizen’s ‘order’ with a communal proposition will change from being subjects of only rights to being subjects of duties for and with their community and state.” (p.27) (Guzman 2003). Ultimately, she adds, this requires a reconfiguration not just of behaviour but of attitude; in marginal sectors of illegal origin the state needs to create the necessary spaces to convert families into “Citizens who are active, interested and committed to improving their quality of life” (ibid). As interviews with present and former DPAE and CVP officials showed, both informing people about risk and resettling them was described as a way of educating people, through which “*they change their conceptions and have a new idea about being part of the city*” (Caja de Vivienda official – January 2010), or, even, of “*re-educating*” people to “*value what they have*” [in terms of opportunities in the formal city] (former district official responsible for resettlement policy – June 2010).

However, the positive discourse of creating citizenship also has its negative counterpart - the labelling of people who do not conform with the expectations of the state programme. Present and former officials of the relevant state agencies report that communities in high risk zones “*don’t self-manage like citizens*”, “*don’t have a citizen’s culture*” or “*were required to make an effort like a citizen*” (DPAE social management Team – June 2010; former district official responsible for resettlement policy - June 2010). Just as being *Bogotano* is integral to what it means to be a ‘citizen’, those without the requisite ‘citizen’s culture’ are said to “*lack a sense of being in Bogota*” or to have “*no territorial identity*” [with Bogota, because they come from other places all over Colombia] (DPAE social management Team – June 2010; DPAE local management Team – June 2010). This very language posits people in high-risk zones as outside the city and outside the remit of citizenship but also reinforces the mission of those ‘inside’ the city to think and operate in particular ways.

In practical terms, the formalisation process that has occurred through resettlement has bounded people’s livelihoods in new ways. Families are encouraged to take up new (state-build) housing, rather than existing housing stock, in part because those going into new social housing receive post-resettlement support such as community training in the “rights and duties of citizenship”, whereas in rental accommodation

the family tends to lose contact with the state housing agency charged with resettlement, the Caja de Vivienda Popular (Caja de Vivienda officials – January and July 2010). However, in such housing, existing ways of living are curtailed as families can no longer keep animals. They also find there is no longer space to accommodate large and extended families (former DPAE official and director of resettlement – June 2010; former head of Altos de Estancia Social management team – July 2010; former Caja de Vivienda official – January 2010)⁵³. While some officials described living in risk zones as the ‘ideal situation’ – as people live free from certain service and tax costs (former DPAE official and Director of resettlement – June 2010; DPAE local management team – June 2010) – the point also reflects the fact that formal integration brings increased payments for families, on top of the costs of the programme.

The reshaping of livelihoods has also been accompanied by an aesthetic as well as practically-driven vision to create public space in the city, with the new land use conceived of as a means of preventing illegal settlement⁵⁴. Cleared high risk areas are slated to be turned into ecological parks, an ideal that has meant further regulation of existing livelihoods. A new regime of land use is proposed for the Altos de Estancia zone, according to the impact of use on its natural resources. Prohibited activities include any physical infrastructure and residential dwellings and mining, fishing or forestry activities (DPAE 2009). The district environment ministry proposes tighter restrictions on the practice of inhabitants in and around the zones of keeping animals to graze in cleared areas – in line with city regulations that

⁵³ In addition, in a revealing passage from a project assessment document, DPAE officials acknowledge that the re-establishment of people’s economic activities is not a key concern of the programme in Altos de Estancia, but also note that the size and conditions of social housing make it virtually impossible to restart the types of activities found in the zone (room rental, small food shops, recycling, childcare, shoe repairs and clothes making) (DPAE 2009), although this was not cited in my own interviews as a particular issue.

⁵⁴ This emphasis on public space as a way of consolidating the social glue of the city has its antecedents, as Berney shows, in changes in the focus of city development in Colombia from the early 1990s, but is brought to the fore under Mockus and Peñalosa. Peñalosa in particular invested heavily in the provision of public spaces, which he viewed as a way of promoting equality, security, culture, citizenship and improving the quality of life (Berney 2010). In Nueva Esperanza, the vision was central to the whole project – in fact of the whole area just under 20% was actually classified as at high risk from landslides, but half was in the Parque de Nubes national park, which was declared an environmentally fragile zone in the 2000 City Land Use Plan (or POT) (Poveda Gómez 2011). The ‘risk’ areas were incorporated into the national park, and made part of the so-called ‘ecological structure’ of the city. In Altos de Estancia, the idea of rehabilitating the land occurred later in the process, after the zone was declared at high risk and resettlement was underway, with social-environmental agreements between the mayor, DPAE and the district environment agency to undertake the work signed in 2006.

animals must not be kept in *urban* areas (Ministry of Environment official – January 2010, my emphasis added). In addition, as Section 5.3 develops, the ideal of creating (uninhabited) public space clashes with the way the existing risk management regime manages the flux of people living in the zone.

ii. *Categorising those ‘at risk’*

This second part focuses on issues related to who becomes entitled to resettlement, and how the right to resettlement is conferred. Through the frame of co-production, I show how modes of risk categorisation are intertwined with forms of socio-political categorisation, in that a restricted notion of rights and a complex set of eligibility criteria curtail the right to resettlement and access to a particular form of state-sanctioned citizenship. The pivotal moment for this was the issuing of a municipal decree - Decreto 094 - in 2003, which has framed the practice of risk management to the present day. The forms of categorisation in the Decreto – based on state simplifications about both risk and the social context – cut across the realities of informal life in high risk zones, creating new patterns of vulnerability. Echoing Epstein, in his co-productionist analysis of how categories of government function to obscure a particular view of risk, I argue that this co-production further obscures the social dynamics and its causes and social perceptions of disaster risk (Epstein 2009).

Primarily, Decreto 094 of 2003 aimed to improve people’s access to government social housing by making available a subsidy known as the *Valor Unico de Reconocimiento* (VUR). The VUR awarded an amount based on a special commercial valuation of the land and property plus an ‘economic vulnerability factor’, applied when the valuation was less than the minimum cost of a typical home in a low-cost housing programme⁵⁵. However, the Decreto also reflected an attempt to delimit the entitlements available to those in high risk zones and who would be entitled to them. It did this, first, by establishing the ‘technical’ mode of prioritising families in socio-economic classes 1 or 2 for evacuation and resettlement through risk assessment, as discussed above. Second, the decree also established new socio-political criteria for those seeking the subsidy, stating that they should have:

- i) documents showing that they were the proprietors or in possession of the lot - a deed of sale or improvement (*promesa de venta* or *mejoras*), invoices from public service companies, judicial declarations by the Junta

⁵⁵ The idea of the VUR was introduced in the POT of 2000 but only defined in 2003.

de Accion Communal (or locally elected committee) testifying this - and were to have lived on the plot at the time of its declaration as a high risk zone⁵⁶

- ii) were not owners of another title and
- iii) that no other member of the family group had been resettled (Decreto 94 2003)

Under these stipulations further qualifying details were developed by implementing agencies: those in ownership or possession, for example, should have been so for at least five years and they should have cleared all debt with public service companies. Groups such as renters were not to qualify, on the grounds that they are able to take up residence in other areas of the city (Caja de Vivienda official – June 2010). The requirement to have been living on the plot at the time of the declaration was motivated not only by the genuinely thorny dilemma of wanting to dis-incentivise new settlement in the zone, but also by the guiding logic of the programme that focussed on protecting the right to life. This translated into the practical stipulation that the programme should apply only to persons physically ‘at risk’ at the time of a given emergency.

The stipulations in Decreto 094 from 2003 reflect, I argue, limits to eligibility based on the view of the municipal government about who had a *legitimate* claim, not only to subsidies, but with it to the right to resettlement, and, ultimately, the right to citizenship and a place in the city itself. The decree thereby produced a form of ‘structured containment’ by the state (Biehl 2005) based on the fusion of risk knowledge, political categorisation and a particular – and limited - conception of rights. While this functioned to enable a new way of life for some groups of people, it also marginalised others.

As outlined by officials working in risk management institutions at this time, driving this containment was both the need to set financial limits on the programme and fix a way of working in informal zones. By the second Mockus administration of 2001-2004, during which the Decreto was passed, the municipal government was confronting the fiscal consequences of the policies set in motion by Mockus’

⁵⁶ In some zones this meant needing to be there when the technical concept for the zone was produced, in others when the census that followed was undertaken. The next section discusses how these cut-off dates became flexible in practice.

predecessors⁵⁷. There were further pressures on the risk management budget. In Altos de Estancia, the largest landslide zone in Bogota, damage from the landslide accelerated from the start of 2002, along with the number of evacuations (Guzman 2003). As technicians assessed the risk level in the zone, their recommendations were staggering: thousands upon thousands of people needed to be resettled⁵⁸, with enormous financial consequences (former director social management team, DPAE – June 2010; former DPAE official and director of resettlement – June 2010; former *ladera* programme coordinator, DPAE – June 2010).

In addition, prior to 2003, those evacuated by disaster risk agencies were either given a cash transfer to find their own housing or had their rent subsidised. This was seen as both unsustainable and ineffective - with the value of the houses in the zones so low, the cash transfer was very small and had to be supplemented by credit if families were to afford a house. Others, meanwhile, were having their rent subsidised on a seemingly indefinite basis. This was seen as part of a wider problem state officials were facing - that people were not leaving the high risk zone. As recounted by the Director of the DPAE's social management team at the time: "*We had to call in the fire brigade to evacuate people as they didn't go. We created emergency shelters and people would leave*" (June 2010). Officials therefore sought a 'definite' solution that would create a 'finite' programme (former DPAE official and director of resettlement – June 2010; former *ladera* programme coordinator – June 2010; former DPAE Director – January 2010). This was reinforced by what state officials describe as the other "perverse" effects of the programme (former DPAE Director – January 2010), effects which structure the predominant narrative of those recounting its history. As well as still leaving people 'at risk', resettlement, in the words of one former official, also motivated further illegality (former district planning official – January 2010). People simply cheated the state, splitting lots between families, for example, to gain more housing (former *ladera* programme coordinator – June 2010). The promise of a subsidy also drew people back into high-risk zones: either the same families, who often bought again in the name of a different family member, or other families, sold lots even after the original owner had been resettled (local management team DPAE – January 2010; former *ladera*

⁵⁷ The change of mayoral administration from Peñalosa to Mockus in 2001 led to new questions about financial sustainability, after Peñalosa's investment programmes led the city to spend heavily.

⁵⁸ Up to ten thousand, according to one former official.

programme coordinator – June 2010; Caja de Vivienda official – January 2010; former district planning official – January 2010; official, Secretariat for Community Development – December 2009; DPAE official – January 2010; Poveda Gómez 2011). The problem was merely displaced as people bought lots in different high-risk zones (former DPAE official and director of resettlement – June 2010; former director social management team, DPAE – June 2010).

Finally, while there was no formal social analysis of lives and livelihoods in the zones, in practice officials gathered and created their own forms of contextual knowledge based on their experience of working in the social conditions of the zones, that came to frame the programme from 2003 more or less unchanged into the present. In order to operate, state officials had to accommodate the informality of barrio life. The social dynamics in the risk zones confounded the technicians undertaking house-by-house inventories, who found families without documents, houses with multiple families and families with multiple plots (former head of Altos de Estancia social management team – July 2010). Often the people who signed their documents were not those who had possession of the plot (social work officials Altos de Estancia team, DPAE – June 2010). After legal studies were undertaken, therefore, officials decided that possession titles (*promesa de venta*) – the predominant form of title document – could be used to establish who occupied a plot, rather than formal land title documents. In addition, given the difficulties of establishing land title, the municipal government decided not to buy up the land, but instead to compensate for *mejoras*, or the housing improvements on the plot (Guzman 2003).

What began as an improvised response by state officials therefore became formalised in Decreto 094, which not only promoted a new economic instrument to facilitate access to social housing programmes but also sought ways to impose control over access both to subsidies and to the use of high risk zones. The understanding of the social context reflected in both forms of contextual knowledge that officials brought to bear on the Decreto, however, was partial.; It reflected the interests of the state in containing the programme, and it neglected other important social dynamics of the context (such as the way people moved between urban and rural areas, their building practices, the commonality of long-term renting, the practice of obtaining credit from

public services companies for the purchase of domestic goods and patterns of ownership and habitation).

To give one example of how this has functioned to limit claims in practice, in the Altos de Estancia zone I interviewed a community of people inhabiting the former barrio of Cerros de Diamante, one of the most extensively cleared following a 2002 landslide. Although the majority were squatting, not necessarily on their original plots, they in fact made up an association of nearly 50 plot owners who were either absent in person at the time of the census carried out by the DPAE at the time of the landslide⁵⁹, or whose houses were at that time incomplete, and would therefore have been marked on the census as uninhabited (many had only just begun the lengthy process of house-building, which could take up to four or five years to complete). The houses were therefore officially classified as without inhabitants whose lives needed saving, and, although people are afforded the right to life they have no right to their assets or possessions. The families, however, had returned so as, as one inhabitant expressed it, '*to not lose possession of their plots*'. They were living in some squalor in predominantly poor quality shacks of zinc and wood (as they only planned on temporary shelter while their situation was appraised) with few services, tapping electricity illegally with the permission of their neighbours and without any water or drainage service.

⁵⁹ In two of the five households we interviewed in Cerros, people reported being away in rural areas, going there for a two-three year spell but coming back regularly to pay the services and other costs on their houses.

Figure 7: Former community of Cerros de Diamante, Altos de Estancia



Source: Author, 2010

Even for those eligible for the state programme, however, programme stipulations could pose significant hurdles to access. The fieldwork revealed how the costs coupled with the bureaucracy of the programme continued to block or delay people's ability to enter resettlement programmes. In addition, the formal requirements of the programme continued to lie at odds with the social practices of families in the zone, such as living on a plot owned by an estranged or deceased family member, so that families had to go through a process of transferring ownership documents before they could be resettled. The table below lists the reasons cited during the fieldwork for exclusion from or delay in accessing government resettlement programmes. (Chapters 6 and 7 elaborate on how this reflected the meanings and values attached to people's livelihoods and how different groups negotiate access to the state.)

Table 1: Reasons cited for exclusion or delay in accessing the government resettlement programme from high risk zones

Exclusion	Delay
Away from address at the time of declaration or census or address does not appear on formal records	Negotiating for used housing rather than state-built housing; lack of state approval of used housing chosen
House only partially built	Fighting for perceived correct valuation for existing house
Squatting	Problems with title (due to family sub-letting or ownership of another property)
Classified as displaced and therefore receive another form of state subsidy	Time and money to complete on paperwork or debts owed to public service companies
Renters	Slow state process – infrequency of state housing projects
Risk classification (either medium or low priority)	

Source: author's elaboration from fieldwork

Access is and has been organised around the framing concept of ‘co-responsibility’ between state and citizen for the management of risk. This further, accompanying discourse reflects a broader national political discourse that has tied the granting of rights to the exercise of duties and obligations by those with formal citizenship (see mention of this in Coleman 2013), and one that was incorporated into risk management as the programme was formalised and delimited, firstly by the POT, and then in the 2001-2004 city Development Plan⁶⁰. In the context of eligibility⁶¹, ideas about responsibility serve to delimit the state’s role, and can reinforce barriers to access. The four components of the Caja de Vivienda’s guiding methodology define the respective responsibilities of state and citizen, which includes setting out the documents that people are required to have to gain access to the resettlement programme (Caja de Vivienda Popular 2005). To give one example of the way this has become linked in practice, a Caja de Vivienda official who works with households in Altos de Estancia relates, “*Often people can’t pay for their papers*

⁶⁰ This proposes improving the access of people vulnerable to landslides “using the criteria of shared responsibility” and ties notions of co-responsibility to the duties and obligations of formal citizenship for those who are resettled, who should then be supported to behave responsibly. Pardo argues that the shift to co-responsibility also occurred with a change in institutional culture away from risk prevention to a paradigm of integral risk management, which marked a move away from a paternalist view of the state’s role in disaster management (Pardo Torres 2010).

⁶¹ The discourse of ‘co-responsibility’ is used both by officials and in project documents to refer to several practices – firstly, that of a household signing an agreement for resettlement with the Caja (a ‘shared responsibility’ pact), secondly, in relation to that household’s behaviour in their new host community and, finally, in relation to the remaining communities’ care for the environment of the ‘recuperated’ risk zone.

[such as ownership documents], and you have to explain that they have to take some responsibility” (Caja de Vivienda official – June 2010). In this sentence, conditions related to vulnerability, poverty and inequality are relegated to issues of individual responsibility, and away from the state⁶².

This section has illustrated how new political discourses, representations and practices have been co-produced alongside risk assessment and management in ways that come to explain the complex and enduring patterns of vulnerability found in landslide risk zones. Such practices have effectively functioned as another form of determining risk for people, engendering a dynamic of inclusion and exclusion across populations, in which particular groups are excluded in ways that could be considered arbitrary both in relation to their formal risk designation and in relation to their own experience of risk (see Gupta for a discussion of the ways in which state governance may become arbitrary in nature, Gupta 2012).

However, as I go on to develop, the consequences of these policies have set up an on-going tension between inclusion and exclusion that poses problems for risk management agencies themselves and that the state is still navigating. How we understand the state practices through which it does so, and which accompany the production of knowledge about risk, is the subject of the following section.

5.3 Unpacking the practices of urban risk governance: flexibility, un-mapping and the politics of inclusion and exclusion

This section is the first of two final sections that concentrate on unpacking the practices of urban risk governance, seeking to re-work the idea of the co-production of risk in the urban context by unpicking how both the ‘natural’ and the ‘social’ are constructed, in their formal embodiments and in the everyday. It is only through understanding these practices, and through understanding them in their full institutional and political context, I argue, that one can understand how vulnerability has been made and re-made in the landslide zones of Bogota.

The central tenet of this section is that the ‘structural containment’ of the risk management programme discussed above, and the desire to dis-incentivise ongoing

⁶² Biehl shows how social labelling and the stigmatisation of particular AIDS victims provides both a rationale for their invisibility and for the negation of responsibility for their care (Biehl 2005). In this case, the discourses discussed around ideas of co-responsibility and narratives focussed on illegitimate over use or misuse of subsidies and the negation of citizenship function to attach reasons for exclusion onto the behaviours of excluded individuals themselves.

settlements in high risk zones by withdrawing state support from certain groups, has come into conflict with the imperative to clear high risk areas, driven by the stated mandate of the programme to protect people from risk, but also the ‘greening’ agenda described above – which relies on the production of empty space – and meeting the numeric targets for resettlement which govern the programme (see Scott for a discussion about how this kind of counting allows officials to deliver results more easily, and Gupta for a discussion of enumeration as a ‘routinised’ practice of the state: Scott 1998; Gupta 2012). According to critics, this imperative simply to move people drives the programme above and beyond considerations of the process and vulnerabilities that ensue for people who are resettled (Robles Joya 2008). Certainly accounting for the numbers of resettled and numbers to be resettled are the hallmark of programme documents, but also emanate from higher level planning documents⁶³.

The result has been a pragmatic but arbitrary process of incorporating people into the resettlement programme, alongside attempting to harden control of new settlements in high risk zones. This has been underpinned by governance practices that – to echo authors such as Roy writing about the governance of informality more broadly – have operated flexibly, differentially across the landslide zones, and in part been enabled by the social ‘un-mapping’ that has accompanied risk ‘mapping’, in which particular population groups are unrepresented in the formal schema of the programme.

The formal state response has consisted of continuous – and ongoing – efforts to modify the strictures of the resettlement programme to bring down the barriers to access for those eligible for the programme. These modifications – changing the way in which the ‘household’ is defined to include multiple family structures, increasing the housing subsidy, bringing down the time required in possession of a property, and agreeing that debts to public service companies could be carried over to the new house⁶⁴ – undoubtedly have and will speed up access for some (with debts, for

⁶³ The POT established the goal of resettling 4,200 families from high risk landslide zones by 2010. Similar quantitative targets were also set in the mayors’ respective City Development Plans. In project documents for the risk zones, the project indicators refer to the number of evacuated properties, the number of families temporarily relocated, the hectares cleared for development and the number of families benefitted by mitigation works (DPAE 2009).

⁶⁴ In 2005 the Caja de Vivienda changed the way it referred to those to be resettled from ‘family’ to ‘household’, in recognition of the fact that houses often contained multiple families (Robles Joya

example, a significant problem for households I interviewed at the time of the research). The modifications have also, nevertheless, left particular social dynamics untouched (as for the Cerros de Diamante community discussed above) and contain their own elements of arbitrariness in the ways in which they ring-fence particular issues (land title issues, for example, despite the decision to work with informal land title documents described above, certainly remain complex and are still cited in recent project documents as slowing the resettlement programme (DPAE 2009). A decree issued as recently as 2011 attempted to further clarify how eligibility for resettlement would apply to cases of separated families or where there were multiple claims to title (Decreto 40 2011).

At the same time, the state has continually shored up the structures of exclusion through legal measures. Renting or selling in high risk zones was made a crime, and those moving into the zones after cut-off or declaration dates are seen as illegal occupants, with responsibility passed to local mayors, with policing powers, to evict them. By the same token, building modification is prohibited in high risk zones and public services are cut off once resettlement has officially ended. However, the ongoing tension in this 'dual strategy' is evidenced in recent programme documents, which continue to define both the need to tackle exclusion from the resettlement programme whilst reinforcing urban control of cleared areas (FOPAE 2012)⁶⁵.

However, this process has also been accompanied by other, more flexible, techniques that have made it possible to move people on whilst avoiding enshrining and normalising new principles for inclusion. Ad-hoc, arbitrary and sporadic accommodations have been reached in numerous cases across the zones (including an offer of a 'special agreement' to the group who re-occupied plots in Cerros de Diamante, Altos de Estancia, discussed above, an offer their leader rejected as insufficient). In 2007, for example, the DPAE issued a new Technical Concept in

2008). In 2006, seeing that the resettlement process was still slow and that people were still in debt to attain social housing, the administration of Lucho Garzon increased the amount of VUR subsidy (Caja de Vivienda official – June 2010; former director social management team, DPAE – June 2010). The amount of time for which people had to demonstrate possession of a property was then brought down from five to three years, while a recent inter-institutional agreement established that debts to public service companies could be carried over to a new house (Caja de Vivienda officials – June 2010).

⁶⁵ And indeed, a new decree in 2011 modified the 094 decree of 2003 to clarify that housing subsidies would not be available for those who settle on land already purchased by the district, who bought or constructed on it after the declaration of the high risk zone and or for construction which does not conform with urban development regulations as set down by the district (Decreto 40 2011).

Altos de Estancia that changed the technical priority for resettlement for a number of families from 2 to 1 (top priority), and at that moment included 92 families who had built their houses after the census of 2003 and were therefore not formally eligible with the aim of “saving life...and making the plots available for mitigation works...” (DPAE 2007)⁶⁶. Precipitated at times by landslide ‘emergencies’ – or those which incurred lasting property damage and / or casualties – and at other times by state drives for environmental recuperation projects⁶⁷ such accommodations were highly uneven in practice.

Underpinning these techniques of government, I argue, lies the dynamic of ‘un-mapping’ proposed by Roy to describe the governance of informality, in which formal mapping based on risk assessment is accompanied by a mode of governance in which social relations are left visually unrepresented and indeterminate, and through which new legalities and formalities are accompanied by new illegalities and informalities. The most obvious manifestation of this is the formal invisibility of groups still living in high risk zones, both in maps and in formal state discourse. In a formal interview, a DPAE official described to me the process of resettlement in Altos de Estancia, outlining the different zones and works planned for them, including how the central zone, the first to be resettled, was ‘empty’, in contrast to the second, in which resettlement was underway (Head, Altos de Estancia Social Management team, July 2010). Obviously my own research confirmed a different reality, one also acknowledged in programme documents (which in the case of Altos de Estancia refer to at least 30 different groups inhabiting the zone, see DPAE 2009).

This governance through ‘un-mapping’ also takes other forms, however. In the zones of Caracoli and Brisas de Volador there was on-going confusion about neighbourhood boundaries and plot addresses in which the social remained ‘unfixed’ despite risk mapping. In Brisas de Volador, a group of neighbours petitioning to be included in the resettlement programme described to me how state officials they had

⁶⁶ In another form of such management, in Nueva Esperanza the problem of what to do with a particular group of ongoing settlers was resolved by passing their case to the mayor for executive decision – an ‘extraordinary’ act despite the normal nature of the flux of people in the zone. The original census was also undertaken again in Nueva Esperanza. In a sign that people were aware of this ‘room to manoeuvre’ with the state, one family in Brisas de Volador reported that although they had moved in after the original census in the zone, they would simply wait for it to be re-done to be included in the resettlement programme.

⁶⁷ In the risk zone of Brisas de Volador, for example, one household reported their re-prioritisation as the result of a planned re-forestation programme around the old quarry area of the barrio.

met de-legitimised their claims partially on the grounds that they did not appear on the maps of the zone (an assertion residents were contesting using their electricity bills as proof) and were administratively part of another neighbourhood. In Caracoli, too, residents reported both how state officials had told them their lots did not appear on formal maps, which may have been affected by the fact that the addresses in the barrio kept changing. In addition the community leader described how it was still unclear whether people at the top of the barrio should be classified as in Caracoli or in Santa Viviana, the neighbouring barrio, which, unlike Caracoli, had not yet been legalised and was not yet eligible for public service improvements. The consequence of this for affected groups was not only the denial of formalisation – either through resettlement or the service upgrading of the barrio – but also of informal ways of life (due to building restrictions in the zone), such as upgrading one's house through the process of building a brick house to replace the original zinc sheet and wood constructions, both of which negatively affected people's vulnerability to risk.

However, to fully unpack some of the contradictions inherent in this system of governance, I argue, as Gupta does, that we need to see the operations of the risk management agencies not as those of a singular, purposive state, but in the context of the practices of multiple state agencies, and, in this case, in the context of the relationship between the state and local institutions. It is to these issues that the final section turns.

5.4 State practice in broader institutional context

In this final section, I draw together an analysis of state practice that seeks to show how risk and vulnerability are produced, as Gupta argues, in the friction between the agendas, bureaus, levels and spaces that make up the state, but also in the ways in which these formal institutions of the state are embedded in local institutions. As in Gupta, I therefore shift the focus from the intentional practices of risk management to the unintentional practices that create new contradictions and tensions at the heart of the programme. These, I argue, complicate the drive to reduce exposure to risk which, when combined with an absence of measures to address sensitivity to risk, create new distributions and forms of vulnerability.

The disjunct between the multiple agencies involved in the programme, and their different mandates, affected the provision of infrastructure in risk zones. The lag in providing drainage to the barrios of Altos de Estancia and Caracoli, for example, was

attributable to the inaction of the *Aqueducto* – or state water company. As mentioned in relation to the ongoing occurrence of disasters in the barrio of Caracoli, while risk focussed agencies are mandated with protecting the right to life, the (public run) water company is mandated to protect constitutional rights to water – but not drainage. This contradiction was said by numerous district officials to be the cause of recurrent landslides in the zone.

The complications in reducing exposure through both resettlement and eviction illustrate how risk management agencies were enmeshed in a broader institutional politics that drew in state agencies, quasi-state agencies, private companies and local institutions. Firstly, a complex politics of land claims both facilitated and restricted people's access to risk zones for land for housing. An interview in the local district office revealed how active local mafias still were in selling land in risk zones. A Caja official and a new beneficiary to the programme showed me a photo of a lot that had been cleared by the district in Caracoli the day before, and the house demolished. On the ruins of a wall, a sign had already been painted '*a vende*', for sale. The woman described how she was offered a lot and told she should buy it 'before the DPAE comes to assess it' (field visit with Caja de Vivienda officials – June 2010). The '*mafia de los lotes*' (plots mafia), as one informant described them, still purportedly sell lots with 'rights to resettlement'. In an indirect politics of entitlement, mafias continuously appropriated the source of state entitlements, benefiting from zone clearance. Their role in relation to formal state agencies remained obscure; they remained unmentioned in any documents relating to the programme, and undoubtedly operated with the blessing of local paramilitary and vigilante groups, active in all the risk zones, who undertook security operations with the local police. In turn, the enmeshment of local mayors in this politics (despite them being political appointees of the city mayor) often prevented them from exercising their formally mandated role to evict people, as one informant explained "*if they pull down houses, they may get death threats*" (Disaster Risk Consultant, Ministry of Environment – January 2010).

The other major players with claims to land were the owners who had publicly registered title to the land, some of whom had sub-divided and sold the land themselves whereas others had the land appropriated by the *piratas* for that purpose. The ability of state agencies to obtain the land from them affected the extent to

which they could claim public ownership of the land and turn it into public parks – in Nueva Esperanza, for example, state agencies had been able to rent the land off the original owner, but it had been more difficult to locate and negotiate with owners in Altos de Estancia. In other cases, however, land owners could be directly involved in collaborating with state officials to evict inhabitants, as was the case for a particular community of inhabitants in the Brisas de Volador risk zone, who were resisting state efforts to evict them, allegedly because the owner had returned to reclaim his rights to land.

In addition, whereas risk management agencies wished to remove all services to high risk zones once resettlement projects were complete, thereby making the zones less attractive for settlement, this practice was constrained by the actions of service companies, with whom there was no legal framework for such a practice. Instead, electricity companies continued to provide services, in lieu of the illegal tapping of electricity. Secondly, as the water supply could not be taken away as a matter of right, communal tubes were left in place in high risk zones by the state authorities, which remaining households could then connect to.

The final dimension I raise here is the way state agencies organise themselves around competing rights agendas (touched on in the case of water provision). Whereas risk management agencies were concerned to uphold the right to life, state human rights and civil protection agencies (the key port of call for inhabitants seeking support to bring legal cases against risk management agencies either for eviction or the failure to evict) supported broader constitutional rights to livelihoods and quality of life. In some cases, human rights agencies asked that newly displaced settlers in the zones be allowed to remain on humanitarian grounds rather than being evicted (as happened for one group in Altos de Estancia, see DPAE 2009).

These at times contradictory dynamics – in which institutions both inside, outside and with non-formalised links into the broader state apparatus complicate and facilitate the movement of people in and out of risk zones and with it both complicate and facilitate the project of clearing and bounding risk zones – add to the ways in which governance ‘on the ground’ can become ad hoc and arbitrary, but can also lead to greater exposure for people who are formally unprotected, living as they do under threat of eviction.

5.5 Conclusion

This chapter shows how, firstly, in stark contrast to impacts-based models for assessing risks, which privilege and fix ‘hazard’ as risk, risk assessments embody particular assumptions, rooted in politics, history and culture. This influences the process by which risks manifest themselves in physical events. Secondly, with reference to existing frameworks for understanding risk as vulnerability, the chapter shows how vulnerability is also shaped and re-shaped through the production of knowledge about risk, and the ways in which this influences and is influenced by the practices of state institutions. In the informal urban context, I stress how this embodies politicised assumptions about how formalisation is to take place and for whom. A process of co-production occurs in which ideas emanating from the state about what it means to be at risk come to be inscribed onto new forms of urban citizenship, at the same time that ideas about what it is to have ‘legitimate’ claim to citizenship come to define who is at risk. I echo Foucauldian scholars in drawing attention to the everyday practices of the state through which the ‘natural’ is, effectively, co-produced, with the chapter showing how these practices may, in the face of the flux and social complexity of urban informal life, be both flexible and discretionary in nature. However, not only does the chapter draw attention to the inner workings of the expertise driving these practises, but in the final part, it extends this view by showing how state practice also emerges out of institutional multiplicity, both within and without the state. The following chapter explores how societal actors respond to risk assessment and the meanings and values it embodies, on the basis of their own meanings and values.

Chapter 6

‘But we are not illegal’: Responses to Landslide Risk in Three Informal Settlements of Bogota, Colombia

6.1 Introduction

Chapter 5 set out the state politics of risk. This chapter is the first of two empirical chapters that now examine how people themselves determine and respond to environmental risk and risk assessments in informal urban settlements. It aims to shed light, first, on the ‘what’ of urban adaptation, asking what risks people are responding and adapting to, and how these reflect changes to their livelihoods as much as the fact of physical events themselves. Second, it aims to extend livelihoods-based vulnerability analysis by accounting for the role of socially-embedded meanings and identities in people’s responses to risk. Third, it sets out to analyse how people’s responses to risk are shaped by the institutional relationship between state and citizen, and relationships of trust and inter-dependence with institutions. New to the context of urban vulnerability theory, it draws on ideas discussed in Chapter 3 to show how peoples’ responses to risk are framed by the values and meanings embedded – indeed co-produced – in risk assessments (echoing Jasanoff and Wynne 1998; Wynne 1996; Birkenholtz 2008 in their discussions of public responses to formal expertise). Furthering accounts of societal responses to risk assessment discussed in Chapter 3, however, the chapter highlights how such responses vary across the social groupings found in informal, urban communities and shows how agency is shaped by convergence, resistance and ambivalence; state framings and local idioms of identity and meaning.

This chapter is based on the fieldwork conducted in three landslide risk zones in informal settlements of Bogota, Colombia (*Caracoli*, *Brisas de Volador* and *Altos de Estancia*). It uses oral histories and other interview material drawn from different types of household across the three zones. It is also informed by analysis of secondary documents relating to risk management in the zones (such as transcripts of court cases brought by inhabitants). In the informal, urban context, the chapter highlights how people’s experience of risk is framed by their own concerns around housing, shelter, access to services and security; their own understandings of their status and rights as urban citizens, and the possibilities opened up and closed off for

them in the arenas of risk management and housing policy (more influential than their ability to engage in short-term coping actions, which most residents recognised as extremely limited in effectiveness).

The chapter is structured in five sections. The first section gives an overview of how the knowledge produced through state-based risk assessments (discussed in the last chapter) relates to the views expressed across the three risk zones. The second section examines in more depth how people respond to risk in the context of the meanings, values and aspirations attached to their livelihoods and the broader sets of risks to livelihoods that they experience. The third section examines responses to risk assessment in the context of local understandings of legality and formality. The fourth section analyses how state practice affects attitudes to risk assessment, and how these practices run, in some cases, counter to people's lived experience of landslide events and impacts. The final section sets out how contests around causation and responsibility mark attitudes to risk. The approach of the chapter is not to suggest that people's attitudes to risk should be romanticised or reified vs state-based expertise, but to explore how particular approaches to risk might account for these local dynamics.

6.2 Convergence and contrasts in state and local responses to landslide risk

The following table presents the ways in which the knowledge generated through state-based risk assessment related to views and attitudes expressed across the three risk zones. As the table shows, there was both divergence and convergence between residents' views and the knowledge communicated from risk assessments. In addition, at certain moments, state risk assessments did influence the attitudes of residents (i.e. the state perspective was 'absorbed'), but the reverse effect was less common - as highlighted in the last chapter, the state was mostly closed to incorporating societal perspectives. The rest of the chapter explains and develops the points made in this table.

Table 2: Characterisation of state and local responses to landslide risk

	Areas of divergence	Areas of convergence	Areas of absorption
State perspective	<ol style="list-style-type: none"> 1. Probabilistic / futuristic 2. Universal to a given area 3. Given risk levels based on technical assessment of causes and possible solutions 4. Physically-given risk assessment 5. Causes of risk often attributed to individual and community processes of urbanisation 	<ol style="list-style-type: none"> 1. Recognition of localised causes of risk in technical assessments (e.g. poor drainage) 	<ol style="list-style-type: none"> 1. Local perspectives acted on only in emergency situations (when people call to report disasters)
Local actors' perspective	<ol style="list-style-type: none"> 1. Historical / presentist 2. Highly localised / specific to particular social groups 3. Risk appraisal based on daily experience 4. Risks experienced in the social context of the threat to livelihood and broader sets of social risks 4. Causes of risk often attributed to state 	<ol style="list-style-type: none"> 1. Role of localised causes emphasised in local discourses 	<ol style="list-style-type: none"> 1. Risk assessments integrated into community perspectives at particular moments (e.g. emergencies), in highly localised spaces and among particular social groups

Source: author's elaboration based on fieldwork.

6.3 Finding a home in the city: Risk and the meaning of livelihood

This section shows how responses to risk are embedded in the broader project of building a livelihood and the risks to those livelihoods. I break down the section according to a basic typology of different groups – present across all of the high risk zones – who exhibit different livelihoods ‘styles and pathways’, a terminology adopted by de Haan and Zoomers to move away from the strategic individualism implied in the more commonly used notion of livelihoods ‘strategies’ (de Haan and Zoomers 2005). Instead, one finds social groupings with ‘styles’ based, in this context, on ownership history and status (owners or renters/squatters) but also, critically, political status, both in relation to the inclusion or exclusion criteria for resettlement, but also other forms of political categorisation. These groups – owners, the recently displaced (*desplazados*, or those who have migrated from rural conflict zones) and those who rent or squat in the zones – respond to risk management with distinct purposes related primarily to either claiming, defending, transforming or receiving housing assets, not only for their material value but also for their meaning (see Bebbington 1999) for these distinctions and discussion of the importance of the

material and non-material dimensions of asset holding). Whether these aims bring them into conflict or co-operation with risk management agencies depends both on their status within the programme but also how their livelihoods aspirations fit with the livelihoods transformation envisaged by the state through its resettlement programme.

a. Home owners

The majority of people I encountered in all the high risk zones were home owners (albeit through illegal purchase, a fact I discuss further in Section 2.). Many could be called ‘long-term settlers’, in that they arrived as part of the main wave of urbanisation of the zones from the 1990s. Theirs is the project that James Holston has described as ‘auto-construction’, or the gradual and lengthy process of self-building, through which people would fulfil their greatest life-time project, building a house to live in (Holston 1991). For those that had arrived in the 1990s, this personal project was often accompanied by collective efforts to found a *barrio*, firstly, through the attainment of services and, secondly, through inclusion in legalisation programmes (which in turn secured further rights to public services). Among the groups of home owners in high risk zones were both those who were technically eligible to be resettled but faced difficulties completing the administrative hurdles for access, those who refused to leave despite being eligible and those who were petitioning for eligibility. A further group I was able to interview were home owners who were eligible, but had rejected the housing option offered by the state and forged their own collective solution. The common theme underlying all of these actions was the search to complete the project of owning a home in the city. What I stress in this section is how these aspirations converged and diverged with the new form of livelihood offered by the state as the solution to risk, how interpretations of risk assessment were embedded in these livelihoods aspirations, and how this modifies the ‘social landscape’ of risk, or the actual patterns of who continues to inhabit high risk zones.

There is a strong sense of a shared language between the aspirations of most, if not practically all, owners and the stated aims of the state project, to improve conditions for the city’s poorest inhabitants. As Maria⁶⁸, a 36 year old former inhabitant of

⁶⁸ All names have been changed.

Altos de Estancia who left the countryside with her family due to economic hardship, recalled, the DPAE and the Caja de Vivienda “*told us that they were going to give us a better house, a better life, that we would have better opportunities for our children*” (Interview 11.02.2010). A family of sisters and their children that I interviewed in Brisas de Volador described how they wished to move, not only because of the conditions in which they were living, and the shame they felt at living in their house, but because they were glad of the opportunity to move to a house that would have public services and to bring their children up in a different area (Interview 17.01.2010). Their neighbours, petitioning for resettlement from the ‘medium risk’ zone, described how they were interested in participating in the resettlement programme as they feared for their lives and sought a ‘*vida digna*’ [dignified life] (Interview 12.03.2010).

Given the opportunity, many people had left the zones through the resettlement programme, even when they did not feel at any personal risk from landslides, or only experienced minor effects. Accessing the programme as a means to transform one’s livelihood had also become an important activity for many owners who had not been evacuated, especially given that once they were included in a high risk zone they were no longer permitted to modify their houses, and their desire to finish house building in situ was curtailed⁶⁹. In ‘Phase Two’ of Altos de Estancia, the area undergoing resettlement, some inhabitants described how the biggest implication of being in a high risk zone was not necessarily the risks that they faced, but the fact that they hadn’t been able to carry on building their houses (interviews 27.06.2010)⁷⁰. High risk zones were also no longer eligible for public service improvements. In Brisas, inhabitants described how they felt they could not leave (because they were not eligible for resettlement and because to abandon one’s house was also to abandon one’s investment in it, see below) but they couldn’t better their situation in the zone. As one woman, a mother who shared her house with her two sisters, all of whom were struggling to make the payments necessary to be included

⁶⁹ This ‘conditional use’ or restriction on house building also applied in Phase 3 of Altos de Estancia, technically a ‘medium risk’ zone, where residents (who were not included in resettlement) reported thinking of selling their houses as a result. One inhabitant complained that being in a risk zone also prevented them asking for a loan to make house improvements (21.08.2010).

⁷⁰ In addition, inhabitants reported wanting to leave the zone due to the impacts of resettlement itself, which meant houses were often left isolated as people lost their neighbours, and the zone felt more insecure. Many parents also hoped that by moving they would be able to live in an area that was more secure in general for the sake of their children.

in the resettlement programme, expressed, “*they [the state institutions] neither help nor allow us to improve ourselves*” (interview 17.01.2010).

As Biehl and Petryana discuss in their analysis of citizenship formation based on bio-medical ‘regimes’ (Biehl 2005; Petryna 2005), this opportunity to remake or move forward with one’s livelihood is rooted in scientific process. This engendered a dependence on the state as people depended on the DPAE to give them their ‘official’ risk status for inclusion, whatever their own experience of risk. This is in stark contrast to the autonomous manner in which people constructed their own livelihoods in these zones, which often meant fighting the state for recognition and services⁷¹. Ironically, it is through the state that the prospect of home-building now lies, and it is this sentiment that was reflected in a phrase I heard across the high risk zones – “*que nos den solucion*” (the state needs to give us a solution). This was encapsulated in an interview with one resident of Altos de Estancia who was awaiting news of whether his house was to be included in the high risk zone after a re-appraisal of the risk assessment. The only solution, he explained, lay with making visits to state offices:

...to see what resolution they give us...if it's true that we are in a high risk zone, then they should give us the solution and if not we can finish making good our home [or ranchito, literally little ranch, the popular (and rurally-inspired) name for people's plots], or at least see what is to be done, because it doesn't have floors and we can't invest in it because the DPAE doesn't let you (Interview 15.01.2010).

Contained in this dependence on the state for a solution was also a need for certainty through risk assessment, in order to know how to continue with one’s project of building a livelihood. This also underlay the tension with the state for people who found themselves in situations of uncertainty with respect to their risk classification, as discussed in Section 4.

⁷¹ Both aspects of this experience were also mischaracterised by state officials I met, who generalised this dependency as a form of ‘benefits dependency culture’ among the inhabitants of high risk zones, which fed into the narrative that people were out to ‘take from’ and ‘cheat’ the state, a narrative that has underpinned the creation and maintenance of eligibility criteria. On the other hand, autonomy was seen as a form of anti-social ‘individualism’, a characterisation which overlooked the collective nature of the struggles to form these barrios and the social ties that had been built up between older home owners.

Alongside the search to transform one's livelihood, which in many ways found expression in the state's promise of formal housing and services, I found deep ambivalence in many home owners' attitudes to the state programme. This was rooted in two aspects: the desire to defend existing assets as well as transform them and reservations about the form their new state-sponsored livelihood was to take. The direct effect of this was often that people would stay in high risk zones even when they had the opportunity to leave – and even when they themselves expressed a desire to leave - in order to try and negotiate an outcome more commensurate with their ways of life.

Those eligible for resettlement were awarded a form of compensation for the *mejoras* or 'works' they had done on the plot, as well as a state housing subsidy. This value was often contested⁷². Recouping this monetary value was important to home owners – particularly those who had progressed further with their house-building project, to the point of putting in brick walls and cement floors – as saving up financial capital to improve their homes had often been a major part of their livelihoods 'strategies' so far, and it often reflected an investment for their families (confirming findings from other studies that the most significant asset for the urban poor is housing – see Moser et al. 2010). This had also been an emotional investment. One of the original inhabitants of the San Rafael barrio in Altos de Estancia, himself a construction worker, whose two-storey brick house now stood by itself in the street as he, alone among his neighbours, resisted attempts to resettle him, described the valuation process:

In the planning department the house is declared at 120 metres but the DPAE and the Caja put it at 90...when they came to do their famous valuation they didn't look at the structure but only the walls...but I had put in foundations – to put up walls you can do it less than 3 days and you see it, but the foundations, time, money, but you don't see it, yes? When the man came to measure the construction I made him note the structure....the reinforced beams, the columns....the dividing wall.....”
(interview 17.01.2010)

Later in the same interview he described the sacrifice of investing in his home:

⁷² In the barrios of San Rafael and Mirador de Estancia, Altos de Estancia, for instance, inhabitants told us the houses were being valued at 20 million pesos, when home owners felt their constructions were worth around 30 million. An owner of a well-built two-storey brick construction said his was publicly valued at 40 million. Of course for other households, particularly newer settlers with more rudimentary shelters, the valuation could be advantageous.

All that we were sacrificing (to put into the house) meant that sometimes we didn't even have money to give a soft drink to the children, or for their toys, we were putting it all into the house to have what we have today.

Such was the value of one's house that it was common practice to leave a family member in the house even when the rest of the family moved out (through resettlement programmes or of their own accord), to ensure empty houses were not vandalised. In addition, in some cases in Brisas and in Altos de Estancia state officials offered other housing options such as rental accommodation to groups who were technically excluded from the resettlement programme to induce them to go, but people refused as it meant "*losing what we have*" – their house and the investment it represented, which would not be compensated by a subsidy under these arrangements.

There was a generalised ambivalence, too, about the housing options on offer from the state. The new build houses were smaller than the spaces on the lots, and referred to by families in both Altos and Caracoli as '*jaulas*' or '*jaulitas*' [cages or little cages]. As one inhabitant of Altos de Estancia, a home owner for 23 years, explained, they felt entitled to receive a house of the commensurate size to the one they owned (interview 04.07.2010). More commonly, house size was often cited as a problem for those with large families, both because in some cases there were large numbers of children, but also because many households consisted of multiple families or included family members beyond the nuclear family (particularly elderly relatives, but also siblings-in-law). In Altos, it was this issue above all else that motivated the formation of alternative housing associations (*Organizaciones de Vivienda Popular (OPV)*), whereby people attempted to use the state housing subsidy to found their own housing co-operative⁷³. As Maria, a participant in the Renacer project, explained: "*Victor [the leader of this particular OPV] said that we should unite for a better life, for better houses, and that [the OPV] could offer us much bigger houses*" (interview 11.02.2010). As with the issue of valuation, though, one long-established respondent hinted that attitudes to the new houses varied with the socio-economic status of the household: "*those houses [which he calls ratoneras, literally rat houses] are no good for me, not even as a gift, they are good*

⁷³ Only one of the attempts to do so – the Renacer project – was actually successful.

for displaced people [referring to poorer, newer settlers], for guerrillas [referring to those displaced from political conflict]” (interview 17.01.2010).⁷⁴

For reasons of size, most people tended to prefer the option to take up ‘used housing’ rather than new build. However, for reasons examined in the previous chapter, the state has preferred to offer new build housing, with strict stipulations attached to the type of used housing that could be approved for use with the state subsidy. A case in Altos de Estancia typified the way this would prolong the process of leaving the zone; the family (whose responsibility it was to find the house) had found numerous houses in the six years since they had been classified as at high risk, but all had been rejected as suitable by the Caja. Finally, under pressure from state officials, who said if they did not take up the opportunity to be part of a new housing development they would lose their subsidy entirely, they were resigned to accepting a “*small house, even though it was very narrow*” (interview 22.08.2010)

The final option offered by the state – in emergency situations or when new or used housing could not yet be found – was to move into rental accommodation. Again, this option carried a huge stigma for the majority of home owners, who had bought their lots in order to be able to move out of rental accommodation, which was costly and insecure. Of the family of sisters I interviewed in Brisas de Volador all had returned to live on their parents’ plot after they ran into problems with rental payments, as this vignette shows:

O was widowed after her husband was murdered in a local park, and was unable to pay her rent, or to feed her two daughters. T separated from her husband and, without a job and her own house, couldn’t pay her rents. Y and her husband were working, but in her brother’s workshop and he paid them so little they couldn’t afford rent or food. As one sister explained, “It’s that if here they resettle you, then you go to your own house and live well, then you can work at least to have good food, education for the children, but you can’t if you are paying rent” (interview 17.01.2010).

⁷⁴ To be eligible for resettlement, the household had to be in socio-economic bracket 1 or 2 (the lowest strata). This reflected quite wide internal variation, however, as indicated by differences in housing structure – from the 2 storey brick construction (more commonly found in Altos) to the zinc and wood makeshift shelters put up by new settlers and partially developed by poorer long-term settlers.

The case of Alfonso, from the Altos de Estancia risk zone, exemplifies how these livelihoods claims, and questions of housing security and choice, were bound up with his actions in response to risk management agencies:

A settler of 12 years still inhabiting his plot in 'Phase 2' of Altos de Estancia (which was undergoing resettlement at the time of the research) Alfonso lived with his wife and some of his children and grandchildren. Aged 54, he made a living selling tomatoes and onions and playing his guitar, while his wife worked as a domestic help. He received no state help, having failed to register for the displaced persons programme. Alberto refused to be pressurised into going into rental accommodation offered by the DPAE and the Caja when he didn't currently have to pay rent. Instead, he said "the hope is to come out of this with the keys: that gives you the full security of knowing, look, I've got my house." While he didn't believe there would be a landslide in his part of the zone, he said he would like to live in a house offered through the social housing programme. He wasn't yet entitled to one owing to complications with his title over another rural property, for which he had made many journeys to sort out the papers, while his son was also engaged in negotiating with the Caja de Vivienda [state housing agency] to claim entitlement for two new houses, given that the family was large, and had built on two plots. The solution, he said, is to wait and see, "because he who is rushed is sent where he shouldn't be sent" (Interview 28.01.2010).

b. Desplazados, or newly displaced settlers

The term '*desplazado*' referred to a political category of people who were formally recognised by the state as having been displaced by the country's political conflict (although many people who settled earlier were effectively displaced, there was no special recognition for them), and entitled to forms of humanitarian assistance as well as afforded special rights. For these groups of people, risk zones offered shelter, a foothold in the city from which to establish a livelihood. Those who settled after the establishment of risk zones, had their presence deemed illegal by risk management agencies, and their main objective was to access a different set of state agencies in order to be officially recognised as displaced, and then secure entitlement to another form of housing subsidy and other benefits. Their discourses about being in a high risk zone were markedly different to those of home owners, with concerns about landslide risk muted by the immediate demands of their livelihoods. In

addition, their illegal status (but lack of alternatives) brought them into direct conflict with risk management agencies (one association of displaced people carried radios to warn each other when police were coming to evict them, threatening to move to another high risk zone if evicted).

The case of Manuel, who had been living for two years in a cleared area of Altos de Estancia, exemplified the aims and discourses of this social group:

Aged 31 and with 5 children, he was dispossessed from his land in a rural area by armed groups. Whilst staying with an uncle in a nearby barrio someone told him there were lots in the zone that he could occupy without anyone bothering him. "Yes, I knew [about it being a high risk zone], but it didn't matter to me because what was more important to me was being there in the street with the children, I didn't want that so I made this lot, we've been here all this time and we've at least managed to get food on the table and dress the children along the way.....when they say that it's a high risk zone, that's when it makes one think a little, that if that's true one could have a problem, in any case be in danger, but as, as such a poor person what can you think about that as well". He said he would return to the countryside if he had the financial means to own an animal or plant a plot, but that the children needed access to schooling which he had hoped they could get in Bogota. (Interview 28.01.2010)



Figure 8: Home owner's house in the San Rafael barrio, Altos de Estancia

Source: Author, 2010



Figure 9: Home owner's house in the former barrio of Santo Domingo, Altos de Estancia

Source: Author, 2010



Figure 10: Temporary shelter erected by newly displaced settlers in a cleared zone, Altos de Estancia

In an ironic subversion of the state's view of emergency (as disaster risk), the tarpaulin reads 'In case of emergency' (referring to the lack of shelter). Source: Author, 2010.

6.4 Risk in the context of meanings of informality and illegality

This section discusses a further, critical dimension to the way in which risk is viewed and negotiated by inhabitants of high risk zones: the meanings given to state definitions of legality and illegality, formality and informality. As discussed in the previous chapter, the emergence of a planning regime in the city based on disaster risk assessment also gave rise to new official definitions of legal and illegal activities as a way to regulate the use of 'high risk' spaces, and bound claims for resettlement. These regulations define – in statute, if not always in practice – what groups are officially considered as 'at risk' and affect both the livelihoods of inhabitants and the scope for people to modify risk. However, people's expectations of how the state should act on risk, the claims they made on the state to act, and trust in state institutions were grounded in different conceptions of their own activities. The section discusses three issues: land purchase and title, legalisation and the rights of illegal groups.

Land purchase and title for home owners

Illegal and informal land purchase – the basis for settlement in all the neighbourhoods – meant that the state only partially accommodated claims to house ownership. Although it recognised informal titles - *promesas de venta* – as proof of ownership, compensation for resettlement, as mentioned, was restricted to the value of housing improvements (*mejoras*) as official land title remained with the original owners (large land owners who may or may not have sold off the land to settlers). In addition, as discussed, some home owners remained excluded from resettlement programmes. However, home owners I interviewed expected the state to take full responsibility for resettlement and compensation (contrary to the state discourse of co-responsibility). Some settlers protested that the fact that their purchase had been illegal was not necessarily known until the state entered and made it known. An interview with three sisters of one family in Brisas de Volador waiting to access the resettlement programme, illuminated how the arrival of risk management agencies revealed to the family how, in the eyes of the state, their tenure transaction had been illegal. As far as the family were concerned they had been given a paper which was commonly used and produced in any local notary's office. For them, the discovery of illegality provided an additional reason to be moved away, given that they had been cheated. As expressed by one of the sisters: *"Here was where, living on this plot, it was that we came to know that the land wasn't legal and all that story...So seeing the tragedy that happened over there [an earlier landslide in the zone], then all the world began to call the DPAE and ask for visits and the rest, that they get us out of here, because this wasn't legal..."* (Interview 17.01.2010). The sister reiterated the view, also expressed by other home owners, that they should be treated and compensated as legitimate owners, not stigmatised as 'invaders'. As a former settler in Altos de Estancia, now resettled through the *Renacer* housing project, explained, *"We felt they had to give us a solution because we had bought the land"* (Interview 11.02.2010).

Legalisation

The history of legalisation processes also influenced local discourses about responsibility for risk and relationships of trust with the state. This was particularly marked in Altos de Estancia, where some barrios were legalised but legalisation was then rescinded when they were declared high risk zones. In court cases brought by

inhabitants and community organisations in the zone against state risk management agencies, this fact was used to revoke state claims that responsibility for risk lay with the community, given that the state had originally recognised the settlements (Court proceedings in the case of Tutela N 041-06, Juzgado Noveno Penal Municipal de Descongestion, Bogota D.C., 12 June 2006).

The rights of 'illegal' groups

Although groups excluded from the resettlement programme were declared illegal, without rights to housing in the zones, inhabitants countered in legal cases with claims to legal and citizenship status grounded in a wide set of rights. A 2011 court case brought by a family living in *Brisas de Volador* but excluded from the resettlement programme because the family was alleged to have settled after eligibility for the programme expired exemplifies this – their petition, or *tutela*, invokes the constitutional rights to children, to family, to equality, to petition, to private property, to due process and to dignified housing (Sentencia T-104 de Corte Constitucional, 22 Feb 2011).⁷⁵ Displaced families also found additional rights claims through the fact that they had been displaced and therefore had an alternative political status that grounded their entitlements to welfare.

6.5 State practice and the social experience of risk

This section examines societal responses to risk assessment in light of people's own experiences of landslide events. In addition to the previous chapter, which examined how state policies of inclusion and exclusion became arbitrary in relation to the state's own goals for risk management, I show how (with people's own experience of risk devalued in formal assessments) state risk assessment becomes arbitrary in relation to lived experiences of risk in a number of ways. Both of these dynamics create societal contestation, which may be more or less explicit in its manifestation, but which shapes how risk assessments are received and acted upon by the very people whose lives they were meant to transform.

⁷⁵ Acción de tutela instaurada por Henry Poveda Rodríguez y otra, contra la Dirección de Protección y Atención de Emergencias (DPAE) y la Alcaldía Local de Ciudad Bolívar, Bogotá. <http://www.corteconstitucional.gov.co/relatoria/2011/T-104-11.htm>

Across the three study areas, those interviewed usually based their observations on direct experience as well as highly localised understandings of where landslides did and could occur within the high risk zones. In some cases, the observations converged with formal assessments and in others they diverged. The first example concerns households who found themselves either graded as at a lower scale of likely risk - 'medium' - within a high risk zone and/or down the priority list for resettlement owing to engineers' judgements of their risk status. This was the case for many of the households surveyed in the lower, central zone of Brisas de Volador. People described being told by engineers that the ground was firm, and that landslides would not penetrate down to the lower part of the barrio. However, many reported feeling direct impacts on their houses due to regular mudflows, such as humidity and cracking, and on their health, as the humidity was conducive to flu and bacterial infections and attracted mosquitoes and other pests. They were advised by engineers to take particular measures, such as digging ditches behind their houses. However, even these type of measures involved too much time and expense for some households, while those who did take them reported that they were limited in effect, and had to be re-done after each rainfall. The point is that risk as a *social* phenomenon, judged by the ability to cope with and manage impacts, had not been taken into consideration.

In addition, this example from Brisas de Volador sits at odds with the predominant narrative of Bogota's officials that people 'don't see risk', and that this (irrational or 'strange', in the words of one official) behaviour explained why people would refuse to leave their homes despite the prospect of disaster. Many of those who had not experienced impacts directly in Brisas (bearing in mind this was a small zone in terms of area) nevertheless answered in the affirmative when asked if they perceived that landslides could occur in their zone. This led to a common feeling that 'it could happen to us' while another respondent described how the impacts were still felt close to home: when it rained, muddy water would pass right by the house (interviews 12.03.2010, 14.03.2010, 20.07.2010). Most people who answered in this way certainly engaged in some form of 'preventative' coping action (such as modifying their houses). The official narrative hid the experience of people who felt at risk, but encountered state inaction.

On the other hand, some households were classified as at high risk, but discounted that they were at risk - these were the households state officials had in mind when they characterised peoples' attitudes to risk. The point is in many senses obvious: risk as constructed in the state's field of vision - based on probability into the future - wasn't always visible in the landscape for people to 'see'. When probed in interview, many of these people founded their views on where landslides had historically occurred – a form of realism, perhaps, rather than denial. This was the case for just one respondent in Brisas de Volador, who noted that his family wasn't at risk, landslides had occurred in a different part of the zone (interview 14.03.2010). In Altos de Estancia, the response was more common as people were spread over a much larger area, at much greater distance from landslide events. Interviewees would describe their situation relative either to where landslides had occurred in space or in time (as being a specific number of blocks away and more or less recently). Often, this fed into the converse scenario to the one described above – those exiting for resettlement actually expressed no personal feelings of being at risk. Alfonso, an old-time settler still inhabiting his house in Phase 2 of Altos (the part of the high risk zone undergoing resettlement), expressed these dynamics: *"No [my family doesn't feel at risk], [pointing] from there to that fence and below, yes, but from the fence upwards no.....most of the people have now gone, but if all of those who felt that nothing was falling in had stayed, everyone would be here"* (interview 28.01.2010). Even where the experience was not as marked – where people leaving for resettlement did experience minor effects (such as houses with small cracks) or where people were fearful – these gradations of personal experience nevertheless bore no relation to the logic of official gradation.

Other related aspects of the practices of risk management agencies added to the sense of arbitrariness that people expressed in their analysis of state actions. Firstly, many inhabitants perceived that the agencies would only act to resettle when there was an 'emergency', resulting in either loss of life or property, usually during the winter, or rainiest seasons. Describing the failure to resettle the group of inhabitants in the lower 'medium risk' zone of Brisas de Volador, another inhabitant commented *"the health secretariat, the DPAE, they've all come, but until they see a death they won't resettle them"* (interview 17.01.2010). Not only did this feed into a common sentiment that state institutions actually cared little for their welfare, it also reflected

the fact that for some groups, the experience of landslide risk was a constant experience – punctuated by moments of ‘emergency’ - that had negative repercussions for people’s livelihoods, an experience devalued by the state.

Secondly, the way in which risk levels and prioritisations were set was not comprehensible to inhabitants. The first issue was that, although engineers operated at the plot scale to avoid splitting properties across risk boundaries, neighbours could still find themselves classified differently. “*How is it,*” one respondent asked, “*that some houses [in the barrio] are low, some medium or some high?*” (interview 15.01.2010). The second issue was that, as discussed in Chapter 5, levels and prioritisations changed over time. The critical point for the people concerned was not only that this process was not understood, but that it created huge uncertainty for their livelihoods. However, there was also deep ambivalence as the dependency on the state to define one’s livelihoods through risk assessment meant that, through all the critique of state practices, many inhabitants nevertheless looked to state assessors to stabilise risk boundaries and levels. As official emergencies in ‘medium risk’ zones illustrated to people (and as discussed in Chapter 5 there were emergencies in medium risk zones in Caracoli and Brisas in 2010 as well as the emergency in Phase 2 (a lesser priority zone) of Altos de Estancia in the same year) state risk assessments were unreliable guides for action.

6.6 Risk through relationships with expertise: contests over causes and responsibility in informal, urban settings

Across all three of the high risk zones, existing inhabitants contested state interpretations of the causes and responsibility for landslides. In particular, they raised issues of drainage and water management as critical to the occurrence of landslides, critical to their livelihoods and as unaddressed by the state.

In the Brisas high risk zone, the official line that cut the zone into high and medium risk areas, in which all those in the upper part were to be resettled, and those below it not, rested on judgements by engineers about slope stability, or whether the ground was firm. Inhabitants, however, reported that the problem lay with water filtration – both from the barrio above them and due to problems with broken water pipes and tubes within their sector (as people were resettled and houses demolished and as working tubes were managed informally by groups of neighbours). For one

inhabitant in the upper ‘resettled’ part, this grounded his view that he was not ‘at risk’ (or not risk in the way that engineers described), as the issue could be remedied: *“The ground itself is firm, if the rocks fall it’s because badly intentioned people do it on purpose [tamper with the water supply tubes] and because the water escapes. We were asking them to put in a grill [to protect tampering with the water supply tubes] but they [state officials] left it as just a project and never returned”* (interview 20.07.2010).

In Altos de Estancia, in an ongoing dispute over the management of the Santa Rita tributary, court case documents also demonstrate how questions of cause and responsibility fed into resistance to state risk management. While the state presented the case that ongoing flooding from the Santa Rita was due to the community’s own lack of care for its environment, community representatives maintained that the lack of official water and drainage was to blame.

In addition, as discussed in Chapter 5, the state considered that in certain situations (such as in medium risk areas) it was the responsibility of inhabitants to undertake mitigation. In the absence of a view of risk as *socially conditioned* (and social factors as part of risk, not just the target of social management), however, this was not only inadequate, but led to contests about the responsibility of different actors to address the causes. In one such case in Brisas, in which a group of families took risk management agencies to the courts for their failure to resettle them, analysis by the public water company confirmed that it was the drainage of wastewater and rainwater towards a depression in the road that was causing erosion and environmental problems for inhabitants. In the defence mounted by risk management agencies, they argued that it was the responsibility of the claimant to take mitigation measures they had suggested – channelling rainwater, linking the channels into the community drainage system and closing up septic tanks. However, the court upheld a different view grounded in a judgement about the socio-economic ability of the families to undertake these kind of works - given their economic condition, the judge concluded, the population could not be asked to assume this kind of responsibility⁷⁶.

⁷⁶ From court documents in the case of an Accion Popular brought by Marco Tulio Ararat Sandaval and others against the FOPAE (disasters agencies), October 8 2004. The documents can be found at <http://190.24.134.67/SENTENCIAS/ACCION%20POPULAR/2004/> (Last retrieved August 27 2012).

The state was also implicated in inhabitants' analyses of the causes of landslides owing to its role in the original development of the zones. In the Altos de Estancia zone – where a significant amount of urban development took place before the area was declared a high risk zone – existing and former inhabitants described how there had been excavation to put in new roads (interview 11.02.2010), and explosives had been used by the water company when putting in new drainage (interviews 11.02.2010 and 01.03.2010). One long-time settler and former community leader from the Cerros de Diamante barrio, in recounting the history of the zone, described how early official studies about mining activity in the zone (which had destabilised some areas) only came to light after the landslides occurred, but were unheard of during the urbanisation and legalisation process (interview 01.03.2010).

6.7 Conclusion

In answer to the research questions posed in this thesis, this chapter shows how the existing approaches for understanding urban risk laid out in Chapter 2 – both impacts-based and vulnerability approaches – might account for: firstly, the ways in which people respond to climate risk in the context of the risks to their livelihoods, as encompassing the meanings, values and identities inherent in those livelihoods; and secondly, the ways in which people respond to risk through their relationship with state expertise and responses to the values and meanings lodged in purportedly technical models of risk. In terms of understanding agency in response to urban risk assessment, the subject of Chapter 3, the chapter has further deepened and nuanced existing theoretical perspectives. In particular it has highlighted how different meanings are held by different social groups (home owners or *desplazado* groups) and how inhabitants respond to risk in ways both conditioned by the new 'frames' of risk management and on the basis of their own 'idioms' of identity and meaning.

Concretely, the chapter has shown how the aspiration to establish a home in the city and the self-perception of inhabitants as legitimate citizens leads to both ambivalence and resistance by different social groups in response to the state's presentation of risk (both as a dynamic (but therefore uncertain) physical phenomenon to be controlled by altering human exposure and because its approach embeds certain values about how urban citizens should live, and who should be entitled to do so, which are felt as 'identity risk' by residents). In addition, the ways in which people understood and responded to environmental risk was, in contrast to

the physical gradations established by state-based risk assessment, based on the multiple livelihoods risks they faced, and risk as judged against their own abilities to cope with both disaster events, but also the continuous impacts of living in a landslide-prone area. The chapter highlighted how the ways in which the state was 'seen', through state practices such as slow response, intermittent visibility and arbitrary exclusions and boundaries, as well as differing interpretations of the causes of and responsibility for risks, affected trust in expertise and with it responses to landslide risk.

Having examined the 'what' of people's responses to risk, therefore, the next chapter moves to examine how people use their agency - based on the responses highlighted in this chapter, but not determined by them – to re-shape the environmental risks they face. In particular, the following chapter asks how agency is exercised in informal, urban settlements, how it is facilitated and constrained and for whom this occurs.

Chapter 7

Re-defining Risk from Below: Agency, Access and Vulnerability to Climate Risk in the Informal Settlements of Bogota, Colombia

7.1 Introduction

In this third and final empirical chapter, I examine how inhabitants of risk zones use their agency to re-define the risks they face, and what facilitates or constrains possibilities to re-shape risk ‘from below’. The chapter contributes to the overall argument of the thesis in two main ways.

First, it shows how the ways in which inhabitants of informal, urban settlements respond to risk – in the context of the meanings and identities discussed in the previous chapter – depends on access to tangible and intangible resources through social and institutional relationships at different scales. Although an ‘assets’ approach to understanding vulnerability implies that households might substitute one type of asset for another to boost their ability to cope with risks, the possibility of rearranging one’s asset portfolio is in fact constrained by these social and institutional arrangements. Such arrangements are contingent and underpinned by different power relations, more a ‘fragile accomplishment’ (to use van Dijk’s phrase) (van Dijk 2011) than a fixed resource. This discussion of agency in turn adds to debates examined in Chapter 3 concerning societal responses to urban risk assessment and management. This chapter draws on theories of vulnerability to deepen our analysis of the multiple forms of agency exercised by poor, urban groups, and the factors that constrain or enable that agency.

Second, the chapter shows how questions of agency, access and the vulnerability of the urban poor are not just social, but also deeply political. It discusses how forms of socio-political agency are exercised by the urban poor as an ‘adaptive strategy’ in the face of risk. The chapter also shows how agency is shaped by political processes at multiple scales, from the politics of local, community-based organising to broader processes of state reform.

Overall, therefore, the chapter contributes new insights to analysis of ‘how’ people adapt in informal, urban settlements and ‘who’ adapts.

To make this argument, the chapter uses case studies from households across the three risk zones with different asset statuses. As Chapter 4 discussed, household interviews were conducted with as representative a sample of social groups as possible, including by political status (legal or illegal, for example), risk zone and apparent wealth (judged primarily by housing quality). For the analysis, therefore, households were divided into high asset, medium asset and low asset groups, for example, and compared. As Chapter 4 also outlined, oral histories and semi-structured interviews were used in conjunction to allow for depth, complexity and understanding of the influence of power relations on decision-making at different historical junctures, and in order to put these narratives in the context of different forms of livelihood. To contextualise the rich, narrative information, case studies or household vignettes are used to report the findings, alongside the identification of common themes through the coding of interview texts.

The chapter is structured in two parts. The first part examines the strategies that people adopt to re-shape risk in the political arena and the political context that has both enabled and constrained such action. The second part focusses on broader forms of agency, examining the livelihoods context that shaped people's responses to risk. It examines the socio-economic barriers to accessing resources that allowed people to transform the risks they faced (such as state programmes or financial capital) and shows how socio-economic status and political categorisation function together to influence vulnerability to environmental risk. The ensuing section then develops this point, discussing how sets of social and institutional relations constrain agency to transform livelihoods and risk at the household and community scale.

7.2 Urban adaptation as politics: negotiating risk in the political domain

This section examines how vulnerability to landslide risk is negotiated in the political domain by the inhabitants of informal settlements. The first part highlights how forms of socio-political agency are mobilised by individuals, households and communities to renegotiate the risks they face in accordance with people's livelihoods capacities, needs, aspirations and values. This is not to say that there was a deterministic link between expressing a contrasting viewpoint to the state and seeking action or redress in the political arena; as the following section highlights, many individuals did not take any action at all, while the previous chapter highlighted how local views were often marked by deep ambivalence rather than

outright opposition. However, as I explore, these views certainly grounded the complex patterns of action that were taken in the political arena, in which citizens sought to access, evade or renegotiate terms with state agencies. The second part of the section then examines the ways in which the political context shaped these avenues for action, across different agencies and scales of the state, illustrating how political action was institutionally embedded.

The use of socio-political agency to transform risk

Tracing the history of mobilisation over the course of the *ladera* programme and the patterns of mobilisation across the three risk zones, one is struck by the multiple forms of political practice through which people sought to use their social and political agency to redefine the risks that they face. From verbal and written petitions directly to the risk management agencies to court cases against state agencies as well as community organising and street protest, the way in which agency is and has been exercised has involved complex manoeuvring in the state apparatus. This has occurred across multiple state agencies and at different levels of state bureaucracy (i.e. over the heads of officials with whom inhabitants had direct contact). It has involved both a formal politics of civil society organisation (however weak) and the informal politics of political brokerage and patronage.

In the barrio of *Brisas de Volador*, for example, where a group of five neighbours in a medium-risk zone was petitioning to be recognised as high-risk and included in the resettlement programme, the petitioners described to me how they had sent petitions to the disasters management agency, but also the *Defensoria del Pueblo* and *Personería* (the national Ombudsman's office, charged with the protection of civil and human rights, and Bogota's human rights body, charged with overseeing the conduct of the city's ministries and service providers). On the advice of these bodies they then sent their papers to the local mayor and city mayor. Documents from court cases brought by inhabitants during the course of the programme also indicate that the *Personaria* and *Defensoria* played critical roles in supporting claimants to bring legal action. Agency could often be sporadic, however, with families petitioning only when family members were ill, for instance. Different social groups also had different avenues for accessing the state: *desplazado* families and communities, or those classified as displaced from Colombia's political conflict and more recently settled in the areas of risk zones cleared for resettlement, sought recognition and

housing through the displaced persons' programme and state bodies specially charged with managing displacement, such as the *Comision de Paz*.

As well as directly appealing to state institutions, people relied on brokers and local political figures to negotiate on their behalf. Maria's narrative of how she secured a place in the *Renacer* community housing project⁷⁷ shows the role that local power brokers could play for people in facilitating access to state subsidies:

Maria, 38, lives in the Renacer community housing project for those evacuated from the barrio of Cerros de Diamante, one of the barrios worst affected by landslides in the Altos de Estancia zone. She described how she struggled to find housing after she was evacuated into rental accommodation following the landslide. Although her husband was there on the day of the census in the zone he had left the family, and she had to go through an extra-judicial process to change the ownership title to the plot (and therefore entitlement to the subsidy). A single mother of three children, she was told she couldn't receive a housing subsidy as she had no fixed employment, she just worked days when there was work. She was given a certain amount of time to make the payments required to secure the subsidy, but she worried as this was running out before she had the money. Then she met an old neighbour from Cerros on the bus who recommended she talked to Victor Neira, the leader of the housing co-operative and a local political leader. When other members of the project were given the subsidy and she wasn't, it was Victor who took copies of her papers to the Caja de Vivienda and complained. In the end, she received the money. (Interview 01.03.2010)

In Caracoli, two contrasting cases exemplified how higher status, political connections could facilitate entry into the resettlement programme:

To try and advance her progress in the resettlement programme, an elderly home owner of 65 had secured the support of the community leader through her brother's involvement in the junta, and through her son the support of a local politician. With this support and that of a lawyer (paid for thanks to the employment of both sons, in particular the permanent job the eldest son held as an electrician) she had written the previous year to the city's civil defence bodies, the Personería, Defensoria as

⁷⁷ Renacer was the only community-based alternative housing project in the three landslide zones to succeed in securing a new housing project, for the former inhabitants of the Altos de Estancia zone.

well as the local mayor. She said she had been promised a place in a housing project due to be completed in 2011 (the following year). (Interview 17.03.10)

The case contrasted starkly with that of a 37 year old woman living in the lower part of the barrio with her husband, five children and one grandchild. Also a home owner of ten years, she was still waiting to find out if they were to be included in the resettlement programme. In her sector, she said “no hay junta” [there is no junta], referring to the lack of interest by the neighbourhood committee in the exclusion of her block from the programme. With her husband out of work due to an accident and responsibility for a disabled son, which limited her capacity to take permanent work outside the zone, she supported a family of 8 working by day in a nearby barrio. Although she had visited the Caja de Vivienda’s local office once to enquire about their status, “There are no resources,” she said, “we just have to wait”. (Interview 18.03.10)

Political patronage brought the promise of connections and opportunities, but could also compromise individual agency and autonomy (what Woods refers to as the ‘Faustian pact’ between security and agency, in van Dijk, 2011). The example used in Chapter 5 of the collection of former home owners now squatting in a cleared zone of the Altos de Estancia risk zone under the leadership of their former community leader illustrates this point. While their charismatic leader took petitions on their behalf to the housing ministry and presidency in order to claim the subsidies to which they felt entitled, the individuals themselves had no contact with state institutions. Through their personal connections with the leader they moved back to the zone, often under conditions of extreme economic hardship or family breakdown. They handed over the relevant papers for the political negotiation, and squatted where directed to, three families per plot, on plots that had never been settled or claimed (to avoid conflict in claiming land titles).

The political context for agency

The second point to note about how agency was exercised by community inhabitants was how these avenues for contestation had been shaped not only by the new architectures of risk management but by broader political settlements reached elsewhere. Political and constitutional change in the early 1990s (with the introduction of a new constitution in 1991 which established the *Estado Social de*

Derecho or commitment by the state to uphold a broad set of social and economic as well as political rights) led to the creation and strengthening of new civil defence bodies. The 1991 constitution, too, provided a key referent for those appealing for changes to their risk status or treatment at the hands of risk management agencies. The constitution enshrined the act of '*Tutela*', or a petition based on the violation of constitutional rights.⁷⁸ Examining transcripts from court cases brought by inhabitants of the three risk zones, it is notable (as touched on in the last chapter) how the cases are expressed in the broader language of social rights laid out in the national constitution and legislation, in contrast to the narrower 'right to life' invoked by risk management agencies. In Bogota, these national changes wrought decentralisation and the beginning of a radical political period in the city's history. Institutions such as the *Personería* underwent significant strengthening in this time, although, critics noted, participation in policy processes – often the root cause of grievances within the risk management programme – remained a largely elite affair, with limited mass participation (Berney 2010).

The political spaces opened up by broader state reforms did not necessarily result in outcomes favourable to the inhabitants of the three risk zones, however. Legal cases were sometimes overturned, sometimes upheld, or, as in one case in Brisas de Volador, although the court found that the inhabitants should be resettled, they did not award compensation, on the grounds that it was the inhabitants' responsibility for settling in a high risk zone (Sentencia T-104 de Corte Constitucional, 22 Feb 2011).⁷⁹ Petitions to risk management agencies were reported to have little effect, although *tutelas* legally required a response. In Altos de Estancia the instigation of a *tutela* by a number of neighbourhood leaders led to a judicial order for an inter-institutional committee to monitor resettlement projects and mitigation works. As Chapter 5 discussed, risk management agencies often responded by accommodating the demands of certain groups without transforming the structures of access (or these structures were much slower to change as they required changes to institutional rules). This type of accommodation echoed Holston's characterisation of the urban

⁷⁸ Interestingly, the poorest socio-economic groups have made most use of *tutelas* in Bogota (Hernández 2010).

⁷⁹ Acción de tutela instaurada por Henry Poveda Rodríguez y otra, contra la Dirección de Protección y Atención de Emergencias (DPAE) y la Alcaldía Local de Ciudad Bolívar, Bogotá. <http://www.corteconstitucional.gov.co/relatoria/2011/T-104-11.htm>

struggles waged around services and legislation as ‘immanent material struggles’ that find resolution in the official apparatus but are not then sustained (Holston 1999). Where new entitlements were granted – to particular housing subsidies or projects, for example – the community organisations then withdrew engagement, although in the Altos de Estancia zone community leaders retained a high profile and were still very active in pressurising the state.

In addition, the occurrence of ‘emergencies’ – or landslide events that caused severe damage to property and even loss of lives – undercut the possibility for many to exercise their agency. Faced with the loss of their homes, or told that the state would no longer support them if they did not leave, people had little choice but to be evacuated. Referring to the lack of voluntarism by those evacuated after a massive landslide in the barrio of Cerros de Diamante in Altos de Estancia – in which over 600 people were evacuated in 2002 – one former community leader noted “*It’s not that they went, it’s that they were taken (no se fueron, los llevaron)*” (interview 01.03.2010).

7.3 Responses to risk in the context of informal, urban livelihoods

This second part of the chapter broadens out from the focus on the political domain to examine how people’s agency to transform risk (including but not confined to the political aspect) is shaped in the context of informal, urban livelihoods. In so doing, the section addresses questions of how informal, urban communities adapt, and who adapts. The first section examines how socio-economic status functions with the forms of political categorisation discussed in previous chapters to mitigate or reinforce the vulnerability of households to landslide risk. The subsequent sections show how access to critical resources to cope with and manage risks is shaped by particular social and institutional relationships, identifying the key factors that facilitate or constrain access for households in risk zones.

7.3.i Socio-economic barriers to access

The findings from the household survey and interviews across the three risk zones confirm existing research suggesting that the ability to access resources to protect against risk is unevenly distributed across households within communities (Pelling 2003; Moser and Satterthwaite 2008). As the following examples show, even for groups eligible for resettlement, the monetary and time costs of participating in the

resettlement process were potentially high, delaying people's relocation from the risk zones:

In Brisas de Volador we interviewed one home-owning family who lived in a zinc and wood house with earth floors. They had spent five years in the process of being resettled, and had just received the keys to their new house. The process had required investing time and money, they said. They had been required to show documents proving their land title, identity, letters from the relevant institutions, certificates of visits from engineers, along with plans and studies of the house, land registry documents, certificates from the junta [JAC or local committee] verifying their residence, and an extra judicial statement attesting to their residence, marital status and the residence of their children. The land title documents to the new house alone cost around 500 thousand pesos⁸⁰. Of the three family members, a woman, her husband and 19 year old son, only the woman was working, doing domestic work and other casual jobs on a daily basis, and they reported no other income. The husband suffered from dementia and had been hospitalised. All were enrolled in SISBEN health insurance. Both parents only had a primary education, although the son had a secondary education. They reported owning a radio and a food processor. (Interview 14.03.2010)

One woman, aged 26, living in Caracoli described in an interview how she, her husband, sister and two children had been classified as 'high risk' in the May 2010 landslide in the zone. Although they were told they were not a priority case, they had been affected by a landslide two years previously and wanted their status revised. In conversations with DPAE officials in the zone they were told to ask for a visit to determine the risk characteristics of the zone. By the start of August they were still waiting for a visit. Going to the DPAE offices to ask for the visit could only take place on a particular day during office hours. The woman said that none of the inhabitants of the house had the time or money for this. (Interview 01.08.10)

Other households reported having to go into debt to pay for the relevant papers as well as clear their debts with service companies, a requisite of the resettlement programme at the time of the research (see also Chapter 5). The same socio-economic barriers were also cited as impediments not only to individual petitioning

⁸⁰ Approximately equivalent to the monthly wage of a domestic help, working full time, as reported by women in the risk zones.

of state institutions but also to collective action. When asked why they did not form a voluntary association, a group of neighbours actively petitioning the state for inclusion to the resettlement programme simply said that they had put so much time into petitioning already (interview Brisas de Volador 05.01.10). In fact – to put into context the forms of political action discussed in the earlier section – in the Caracoli neighbourhood, out of twenty two surveyed, only three households reported directly contacting state risk management agencies. Alongside the instances of challenge and resistance and their politics, therefore, there lay a more mundane reality, expressed by many households in the phrase “*toca esperar*” (we must wait), which meant waiting for state subsidies, visits and even new surveys which might govern new inclusions to the resettlement programme. For some households, their vulnerability was then compounded by the fact that mitigating against risk – as expected of them by the state and as discussed in Chapter 5 – itself demanded time and resources.

The question that arose during the research was the role that socio-economic barriers to institutional access played in excluding the poorest groups. While district officials suggested that the prioritisation process meant there was more likely to be a delay in entering the official programme for those with better constructed houses, as discussed, households who were formally eligible for the resettlement programme nevertheless struggled to meet its requirements. In fact, in Caracoli, the community leader reported that it was the original settlers who had the least who were the ones that were left in the high risk zone (Interview 22.03.10).

In Caracoli, the third study site, a landslide event in May-June 2010 caused a re-classification of part of the barrio, from medium to high risk. In August that year we surveyed 15 households in this area. The most striking thing to note was that all the houses bar one were brick and cement, as opposed to the zinc and earth constructions of the older high risk area (reflecting the typical process of house construction through upgrading, which by 2010 spanned over a decade of settlement). The majority of families received some government social assistance, and publicly-subsidised health insurance, indicating high levels of relative poverty, with levels of education and employment status – as in the high risk zone – highly variable. However, as a tentative indication of higher levels of asset accumulation, in these households family reported owning goods we did not find in Caracoli’s high risk zone, such washing machines, fridges and, in one case, a computer. It is not clear

whether this reflects a difference in overall asset levels, however, or that the uncertainties of living in a high risk zone and restrictions on construction limited decisions about how to invest household assets, as interviews in other zones revealed. In addition, in the (previously) medium risk zone one household reported having taken formal loans (a finding confirmed in surveys of the non-high-risk Altos area), which suggests both the capacity to absorb the financial costs of such loans, as well as the related human and financial capacity and status to secure them. The final finding to note is that – with the exception of one block of households deliberately refraining from action in the hope of being included in the resettlement programme – a number of households who had experienced little or no direct impact from landslide events had nevertheless taken action to prevent water saturation and earth falling in behind their homes, by either digging ditches or channels. This suggests again the ability to assume the time and financial costs of doing so, costs which in other cases – even where the impacts of landslides were strongly felt – were simply prohibitive.

The contrasts in the socio-economic status of households across the zones and the impact of this on families' ability to access the resettlement programme, alongside other resources to manage risk, is illustrated through a set of case studies from households of different asset statuses. Within the high risk zones, the poorest groups were newer settlers who were automatically ineligible for housing subsidies (although, as Chapter 5 discussed, special conditions for inclusion were sometimes found). Manuel's case illustrates how poverty and political marginalisation combined to perpetuate his presence in the high risk zone:

Manuel is a 31 year old man who lives in the Altos de Estancia risk zone, squatting in a cleared area that has been declared at high risk. He lives there with his wife and five school age children. He moved in two years ago after arriving from a rural area to stay with his uncle because his family were threatened by armed groups and they had no work. Their house is a rudimentary shelter made from materials donated by people they knew through his uncle as they couldn't afford to rent. Manuel, who said he knew a little bit about construction but had worked in the rural area as an agricultural labourer and was only educated until the first grade of secondary school, worked on construction sites for a few months, going wherever there was work, but sometimes there was no work and sometimes he didn't get paid. He then

decided to mend rifles for people to make a living - a skill he picked up from watching people on the street - travelling into the centre of town every Friday to do it. His wife stays at home. As they have not been accepted onto the displaced persons' programme they receive no state aid, they have no public health insurance and only the two youngest children have been accepted into school. The family tap both water and electricity illegally for free. He says the family just about manage to have enough to eat. His only direct contact with the state had been through his application to be part of the government's programme for displaced people. Although he had been told to pursue their case through the Defensoria, he said that they hadn't been, as some weeks there was money for the journey and some weeks not. (Interview 28.01.2010).

Amongst older settlers, there were two broad groups of 'medium asset' households and 'high asset' households (in relative terms). The contrast between these two groups is illustrated by the following two case studies. 'High asset' households were uncommon across the risk zones – as the case shows, these households were able to pursue independent options to leave the zones. Medium asset households made up the majority of my informants. Unlike the high asset case, in the medium asset case the family was not able to contemplate taking a formal loan, and the head of the family had only sporadic employment. The family was also less politically well connected.

Medium asset household

Eva is a 51 year old woman living in the barrio of Brisas de Volador. She moved into the area ten years ago after the rents went up where she was living. She lives with one of her sons, aged sixteen, and her elderly mother, aged eighty-two, who suffers from hypertension. Her mother receives a state subsidy and all had state health insurance (targeted at the poorest groups). Her mother has no education, Eva has primary level education, and her son is at secondary school. Eva goes out to work when she receives the household bills (they are charged for electricity), but has spent two years without fixed employment, working either as a domestic help or in the rubbish collection agency office in the north of the city (where she has a friend who works). Her other son, aged 26, moved out to another barrio the previous year and is studying, although Eva visits him to help with the domestic work. The father of her children is an alcoholic but gives them some money. Eva keeps two chickens for

eggs. They own various domestic items such as a radio, food processor, television, fridge and electric oven. The house is on one floor with five rooms and is made from zinc and wood. To protect against landslides, Eva makes and clears out channels around the house. Eva collaborates with some of her neighbours to petition to be included in the resettlement plan, but says that in general people in the barrio don't work together. (Repeat interviews March 2010)

High asset household

Julian is 53, and lives in a two storey brick house in the Altos de Estancia risk zone. He lives with his wife, two children who are nineteen and twelve and one granddaughter. Both he and his wife work, while his eldest daughter works when she is not studying at university, selling school uniforms in a clothes shop. His wife works as a domestic help around three days a week. Despite having had only primary education, Julian progressed from working in construction to working for a timber exportation firm, and then for a chemicals firm. However, he had had to leave after an industrial accident the previous year, and now worked as a contractor doing maintenance work. He had been paying into a social security fund, although payments to compensate for his accident had not yet materialised, while they pay into a social security fund for his wife. He had bought the lot in the mid-1990s – moving in from rental accommodation - and built his own house, paying off the quota in parts (with interest). When his barrio was legalised he was able to get formal title to the house. He and his wife were looking to get a loan from a savings fund against the land title in order to be able to move to a new house. They paid for electricity and water as well as a fixed telephone line. Julian was close to the leadership of the local Junta de Accion Communal (literally Community Action Board, or the locally-elected community organisation) and had been asked to stand for president, although he declined. Vocal in community meetings and with state officials, he refused inclusion in the resettlement programme and was lobbying the institutions to have the full value of his house recompensed before he would move. (Interview 01.03.10).

This section has indicated how socio-economic status and political categorisation combined to influence the exposure and sensitivity of households to landslide risk across three risk zones. The section has presented findings from the research to show how poverty inhibited access to resettlement programmes, and compounded the

sensitivity of those still inhabiting the zones (although this was also underwritten by political decisions not to mitigate risk in these areas and to prohibit livelihoods activities which could also protect against risk, such as housing improvement). The research indicated that, where also politically excluded, the very poorest were most disadvantaged. The section then illustrated through a set of case studies from different asset groupings some of the processes through which poverty and political marginalisation are linked. The following section takes this forward, examining how these processes are embedded in social and institutional relationships which are highly contingent and, for the poorest, highly fragile.

7.3.ii Transforming risk: informal urban livelihoods in social and institutional context

This section analyses how the structures and relationships underpinning people's livelihoods both enabled and constrained their ability to access opportunities to change the risks they face (on the basis of the meanings and identities discussed in the last chapter). The section shows how household capitals were not substitutable, equivalent and strategically managed to cope with risk, as assets approaches to livelihoods and vulnerability might imply, but shaped by the networks in which people were embedded, and the power relations within these. The section examines the three most important facets of livelihoods that emerged from the research as key to households' abilities to reshape risk: the ability to leverage financial capital, to mobilise social networks and to negotiate the local institutional context.

i. Leveraging financial capital

Across all three asset classes interviewed, and as the previous section showed, a critical factor in re-shaping households' ability to cope with landslide-related risks (whether 'autonomously' or through state channels and whether in accordance with or at odds with state-based risk assessments) was the accumulation of financial capital. Unlike other studies of 'coping' actions in urban environments (Jabeen, Johnson, and Allen 2010) there was little evidence in this study of households diversifying employment in order to leverage financial capital. Households and key informants reported major constraints to finding work: security concerns, lack of skills, the stigma of living in Ciudad Bolivar (still regarded as an insecure zone rife with delinquency by many in Bogota) and the need for social connections (discussed further below). In a high number of cases, security concerns meant one adult

member of a household stayed at home to watch the property and be with other family members, especially as high risk areas were perceived as fostering greater delinquency. The following case from Altos de Estancia illustrates how these factors combined to perpetuate poverty and vulnerability.

The family, with six children, bought the plot and then moved to another part of Colombia. They moved back to the zone after they had heard about the official census for inclusion in the resettlement programme, but still missed the census. They now lived in overcrowded conditions in a house fabricated of plastic sheeting, petitioning risk management agencies on the basis of their title papers. The mother described how when it rained, water came up to their knees. They had no family nearby so nowhere else to stay. The husband worked in construction as it was where unskilled labour was needed, but he didn't bring in enough money for the family. His wife didn't want to go out to work as she was worried about the security of leaving the children alone. (Interview 08.01.2010).

Where people were able to transform the risks they faced it was principally by taking informal loans and receiving state assistance and, in a handful of cases, saving. The following examples from the Brisas de Volador risk zone show how this enabled particular households (both original settlers of 'medium' asset status) to manage the fact of still living in a landslide risk zone, having been unable to enter the resettlement programme:

Lucia lived at the bottom of the barrio, in a one-floor brick house, with her husband and two children. To do repairs to stabilise the house, at a cost of 800 thousand pesos, she took a loan from her employer which was then deducted from her salary. The loan came with interest. Lucia reported earning 25 thousand pesos a day and her husband, when he had work, earned around the same (Interview 09.01.10).

Luz was one of the original settlers of the Brisas zone, having bought the house in 2000, and had fully paid off the original loan for the plot. She and her family were one of only two families encountered in Brisas who had moved out into rental accommodation because the living conditions had become so bad. She worked three-four days a week as a domestic help in family houses, but her husband wasn't working. The cost of the rental house and service costs (they had never paid for

electricity in the risk zone) exceeded her salary, however. In addition, they received a state subsidy (Interview 12.03.10).

As the first example shows, the nature of employment was critical to the ability to take loans, with more permanent employers a potential source of finance⁸¹. Social contacts played a vital role in securing loans as well as work (which was mainly procured through word of mouth). Repeat interviews with one family in Brisas de Volador were revealing of these dynamics. Early in 2010, the family – three sisters and one brother and their families – were going through the paperwork necessary to complete the requirements of the resettlement programme:

By March, the family needed to get proof of payment from the public services companies, which was being held back by a credit F [the brother] had taken out with the electricity company Codensa to pay for a hi-fi and TV and which now needed to be paid off. He had negotiated with the company to pay it off in three parts. F's sister T had asked her uncle for help, and was thinking of asking women who she worked with to help. She asked me about taking out a formal credit, but said that she had never got involved in this kind of thing, and was unsure what papers she would need. The oldest sister Y meanwhile had got another job in a different kitchen through a family contact, although the kitchen had said that they couldn't take T on as well as they didn't take sisters. F didn't want to help T with her work as a street seller because the police were hounding her. T had called an organisation her other brother was involved in, in the dress-making business, but they said she would have to take a test before passing them her CV. Later in March, T said she thought that F would get the money from a friend. (Repeat Interviews March 2010)

The importance of stable work and the social networks gained through such employment was underlined when, later in the year, a landslide affected the family's house. Sister O, who had regular employment in an NGO, described how she was able to move out of the family home, but her younger sister T – a street seller – remained behind:

⁸¹ The precarious nature of work – with many survey respondents in daily paid, casual employment – also restricted people's ability to participate in state programmes and in community and neighbourhood organisations. The problem of getting 'permisos' was widely cited as a block to attending meetings, even for those on supposedly 'permanent' contracts. One interviewee now living in the *Renacer* project recalled how she was sacked from her job in a restaurant after asking for time off to go and get the papers she needed for the housing subsidy (Interview 01.03.10).

O described how she had a fear of paying rent, but how at 3am one night another pole fell in. “I heard a horrible thing....like a tremor, it almost had us buried; there was only the table between us and the kitchen. I grabbed the children and got them out as best as I could. I phoned a woman who I knew as her child goes to the Foundation [where O works] and asked if she could lend me money and that same day I came and looked for a house” It took O a week to find a house, which meant taking that time off work. Eventually, another woman at the Foundation told her there was a house free opposite the Foundation. O can’t pay the rent and the services, and is getting help from the Foundation. The owner of the house left her a microwave and a fridge which she is also paying off in small amounts. Despite being warned of the risk by DPAE officials, T stayed in the risk zone. Her work as a street seller was erratic due to police operations while she had failed to get work through her sisters. Although she had called a catering organisation her brother used to work for, they informed her she needed to go and take a test before she could be considered for work. (Interviews March 20 2010 and July 2010)

ii. Mobilising social networks

Social contacts were vital in many cases to people’s ability to move away from the risk zones, both through the resettlement project and of their own accord, and physically mitigate risks where necessary. The case of Mariana – a former inhabitant of the Cerros de Diamante community in the Altos de Estancia zone – epitomised the role that these networks could play in facilitating resettlement:

Mariana had lived in her new house for four years. Before moving to the resettlement site she said she had a good job and was even working on Sundays. Her employer’s friends got her the new plot, it was the only one that met the Caja de Vivienda’s specifications for being resettled to used rather than new housing. She managed to bring some of the materials from her old house over to the new site, but they were stolen from her new plot. Another person evacuated from the zone helped her to make the floor and put the house up, while a friend lent her one million pesos (around two months full time wages in domestic employment) to build the house at 5% interest. (Interview 19.03.10)

For those who were unable to move away, managing landslide risk in the zones through cleaning gullies and putting in stairs and drainage channels was also dependent on networks between neighbours, particularly ties among older settlers. In

Caracoli, one family complained that changing the poles that held up their houses, and that became damp after rainfall, was difficult as it brought conflict with neighbours. Another household reported that putting in contention walls behind the house depended on agreement with the neighbours (Interviews 18.03.10 and 01.08.10).

However, as other studies of social capital have highlighted (Cleaver 2005), horizontal networks between those of the same status could also be fragile and easily exhausted. One family in Brisas de Volador reported staying with friends or relatives at night, when landslides often occurred, but that this was only possible until the friends or relatives got tired of it (Interview 20.07.10). Attempts to use social networks could also fail (as T's attempts to find work through her siblings in the Brisas de Volador case above showed)⁸².

iii. *The local politics of access*

This final section shows how community-level ties shaped access to institutions, in particular the state resettlement programme from high risk areas. It shows how local politics and power relations mediated people's ability to transform risk.

As alluded to in some of the vignettes above, formally-elected community organisations – the *Juntas de Accion Communal (JAC)* – were pivotal to negotiating access to the resettlement programme. JACs were key institutions for risk management agencies, who disseminated information and organised community meetings through them, while, as the cases in the previous section showed, JACs could assist petitions for access. JACs provided letters verifying residency in the neighbourhood which were asked for as part of the official process. In all three risk zones, JACs were reported to charge for this (in Caracoli, informants said this cost around 5-10 thousand pesos). Where households had no access to a JAC, it was difficult to obtain such documents. In the Brisas de Volador risk area, for example, there was reportedly no JAC: the junta in the neighbourhood above did not consider the area under its remit, and residents reported that they were unable to ally themselves with the neighbourhood below as, although the JAC leader was supportive, they were not legalised and the other neighbourhood was. Families reported difficulties getting the necessary papers. The case also reflects the fact that

⁸² Conversely, the collapse of social networks was also cited by newer migrants into the risk zones as a reason for their seeking shelter in such areas.

risk areas became – in all three neighbourhoods – stigmatised zones within the wider community. In the Altos de Estancia area, neighbouring community leaders said their communities believed that delinquency had increased with the establishment of the risk zone, and inhabitants of the risk zone complained people from neighbouring communities not in the risk zone threw rubbish and water into their area, and wanted them to leave. In addition, uncertainty about administrative boundaries and the incomplete ‘mapping’ of informal zones (discussed in Chapter 5) excluded certain groups: in Caracoli, a group of inhabitants at the top of the risk zones remained apparently undefined in terms of their inclusion in the Caracoli barrio or neighbouring Santa Viviana.

The case of public service debts in Caracoli also illustrated how ineffective – even predatory – local institutions could undermine attempts to manage risk. Many households reported being in debt to the water company back-dated over several years, even though water and drainage had never been formally provided to most of the neighbourhood (legalisation of water for zones not at high risk was taking place at the time of the research). In a corruption scandal the previous leader of the junta had ‘sold’ the names of everyone in the barrio to be included on the list for installation. Although the individual was reportedly now in jail, the debts still stood. One woman – a 26 year old owner living at the top of the barrio who was unable to work herself because of an accident, although her husband had casual work in construction – had been told she had debts to the company of 430 thousand pesos⁸³ which she needed to clear before being able to access the resettlement programme (17.03.10).

The operations of local security and paramilitary organisations also influenced the organisation of the juntas and independent attempts at community organising. In the Brisas de Volador zone, in the section known as Bella Flor, which was under threat of eviction, inhabitants reported that paramilitaries were active, charging for the provision of security. Threats against the junta meant that it ceased to operate, leaving people without a formal channel for representation. In Altos de Estancia, a former community leader reported how attempts in her neighbourhood to devise a

⁸³ This was roughly equivalent to two months full time salary for domestic employees, positions regarded as good jobs in the zones. Unskilled men typically took on construction work, which was lower paid.

community-led housing project as an alternative to state resettlement programmes foundered when local groups attempted to extort the money being saved for it (Interview 10.03.10).

In many cases, therefore, the institutional channels which people relied on to leverage access were limited to individual petitioning and working in small bands of neighbours. In the Brisas de Volador medium risk zone two initiatives to petition the state for inclusion in the resettlement programme were underway by two groups of just a few neighbouring families; living only a few blocks from each other, they were unaware of each other's activities. Only in Altos de Estancia, where whole communities were resettled, where there was a history of community organisation and leadership forged through the era of legalisation and a legal process had formalised dialogue between state risk management agencies and community leaders, did people work through the juntas. Even then, newer settlers in the high risk zones were isolated or had their own modes of organisation (such as displaced people's groups) and some remaining groups of older inhabitants complained that they were unrepresented.

These cases also highlight how state processes of resettlement re-shaped the local institutional context for people, with resettlement socially divisive within 'at risk' communities and between those in risk zones and those not. The community leader of Caracoli described how resettlement had brought disunity as new people had moved into cleared areas (interview 22.03.2010). In addition, independent attempts at community organising – such as initiatives for community-based resettlement projects – reported little support from state institutions. In the only successful case across the zones of such a project – the *Renacer* initiative – the leader of the group reported feeling stigmatised by state agencies for 'politicising' risk management and giving strength to other community leaders (Rojas Pulido 2004).

7.4 Conclusion

In answer to the first research question posed in Chapter 1, whether approaches to risk in informal, urban settlements needed re-thinking and how, this chapter has suggested two key extensions. First, in line with broader critiques of assets-based livelihoods approaches to vulnerability, the chapter has shown how social and institutional relationships for accessing critical resources are key to transforming

‘assets’, including opportunities in the social and political domain. The analysis in this chapter complements that of Chapter 5. Chapter 5 showed how state risk assessments, and the ‘categorical matrix’ embedded in risk assessment that engendered new forms of exclusion and inclusion, shaped the institutional possibilities to remake vulnerability through mitigation works and resettlement programmes. This chapter has added to this by demonstrating how institutional processes at different scales and across the broader state apparatus have also opened up or closed off possibilities for transformation (whether through resettlement, in situ mitigation or migration out of the zones). Further, it highlights how social and political connections at the household and community scale define the possibilities for households to reshape their livelihoods, and their vulnerability, in ways commensurate with the local meanings and identities discussed in Chapter 6. The chapter indicates that for the poorest groups these social and institutional ties were the most contingent and fragile, and depended on access to more powerful and well-resourced actors. In this regard, employers and local political actors were central.

The second key contribution of the chapter in answer to research question one is to show how a stronger emphasis on political agency and institutions is needed to make sense of the vulnerability of the inhabitants in Bogota’s risk zones. Again, this complements the analysis in Chapter 5 with a more in-depth examination of the political agency of vulnerable groups and the role of political institutions beyond risk management agencies. The chapter shows how the types of political action taken by households were varied and opportunistic, and depended on formal and informal channels (including, interestingly legal avenues for contestation). The lines between ‘civil’ and ‘political’ society were indeed, as Corbridge notes, blurred (Corbridge et al. 2005). In the particular urban context of the study, the chapter further shows how insecurity and the difficult politics of community organising in Colombian culture and political life affected possibilities for collective action, although collective responses to risk did occur (whether in protests or community-based housing co-operatives).

The second research question posed in Chapter 1 was, how do states control for risk and vulnerability in informal, urban settlements? The chapter stresses that understanding the forms of political categorisation described in Chapter 5 is critical to understanding the dynamics of risk and vulnerability, and that the imperative is to

understand how political categorisation and socio-economic forces function together to influence outcomes for people. This chapter then adds to the analysis of risk assessment and societal responses to risk assessment presented so far in three ways. Firstly, it suggests – in line with Chapter 3 – that to understand how risk and vulnerability is, in effect, managed, it is necessary to understand not only the actions of risk management agencies but the influence of broader shifts in state institutions. Second, this chapter shows how state influence on risk and vulnerability – both negative and positive - is mediated by the sets of social and institutional relations in which people participate. Finally, it suggested the need to account for variation by social group and wealth ranking and for different forms of agency, from strategic resistance to co-operation and passive ambivalence.

Chapter 8 Conclusion: Rethinking Urban Risk and Adaptation

8.1 Introduction

This study has made two key, over-arching contributions to existing scholarship on urban risk and adaptation. First, it has provided a new empirical study of risk and vulnerability in informal, urban settlements, sites which have been under-studied in the disaster risk and adaptation literature to date. Second, it develops new conceptual thinking about the nature of risk and vulnerability in an informal, urban context. A critical argument of the thesis is that in order to make sense of the drivers, processes and outcomes of climate related risks in informal, urban settlements, it is critical to understand the politics of risk and vulnerability. In particular, the thesis calls for greater attention to the politics of risk assessment, or the ways in which risk as defined by powerful (in this case state) actors includes or excludes other visions of what risk is, who is at risk and who is responsible for risk. In turn, the ways in which urban inhabitants respond to risk reflects their responses to the visions implicit in risk assessment, the relationships this engenders and the access opened up or closed down by the new institutional arrangements it mobilises. This politics of risk assessment also plays out on political terrain, shaped by a broader state politics of democratisation and by the political agency of urban inhabitants. The analysis provokes us to revisit what different urban actors are adapting to, how they are doing so and who is able to transform the risks faced by low-income, informal urban communities.

The conclusion reviews the research questions posed in Chapter 1, highlighting the main findings and further original contributions of the research. It then discusses the implications for policies to manage landslide risk in the informal settlements of Bogota and for urban disaster risk management and adaptation policies more generally. Finally, the chapter ends with suggestions for future research.

8.2 Do approaches to risk need re-thinking in informal, urban settlements and, if so, how?

The Introduction (Chapter 1) argued that informal, urban settlements manifest distinct forms of vulnerability to climate-related risk that have so far lacked due consideration in scholarship concerned with urban disasters and environmental change. While the nature of informality remains contested in the relevant literatures,

and varies across contexts, informal livelihoods are in part characterised by particular social practices and governance relations which potentially influence social vulnerabilities to risk. In accounting for these dimensions of vulnerability, new challenges arise, I argue, which suggest the need to re-think existing approaches to understanding climate-related risks, and the methods by which we do so.

Chapter 2 then provided an in-depth review of contemporary approaches to urban risk. It argued that the bulk of urban scholarship on climate risk replicates a wider trend in the disasters and climate change literature – and in related policy approaches – to characterise risk as hazard, and thereby map the impact of physical events on particular social variables. This ‘impacts-based’ view of risk neglects questions about how social institutions and livelihoods mediate who is vulnerable to risk and how (Romero Lankao and Qin 2011). The chapter suggested that approaches to urban climate risk that do take these questions of social vulnerability as their starting point nevertheless neglect important dynamics of the social context and that these may be particularly pertinent to exploring the nature of risk in informal urban settlements. Drawing on wider debates about the nature of livelihoods, the chapter suggested Assets-Vulnerability approaches needed to better account for local experiences of risk (the ‘what’ of adaptation) and the role of meaning, identity and cultural practice in household decision-making. In addition, it advocated a move from a view of vulnerability as a condition of asset ownership, towards seeing it as the product of social *and* political relations, and the way these govern a lack of entitlements (van Dijk 2011). Where accounts of urban vulnerability to risk have addressed how particular institutional contexts shape vulnerability, they have concentrated on the formation of social and political assets in the context of different types of political regime (Pelling 2003). This work can be extended, first, by taking a broader view of livelihood practices, and, second, through a stronger focus on governance at the urban scale, and in the context of urban informality. In particular, the chapter argued for a more dedicated focus on the politics and practices of urban states in such areas, and the construction of state-based knowledge and expertise. It pointed to the need to connect analysis of access relations – as the basis for a more relational approach to livelihoods (Haan and Zoomers 2005) – with analysis of the ways in which state risk assessments mobilise new institutional channels and frames for managing risk. In these ways, the chapter argued that approaches to risk and

vulnerability needed to focus more on the political as well as the social production of vulnerability, and the political agency of those affected.

Chapter 3 set out a new conceptual frame for thinking about risk in informal settlements as socially and politically embedded. It drew together scholarship from approaches to Science and Technology Studies concerned with the tacit framings and assumptions of scientific risk assessments, political science and urban studies. The chapter argued for stronger engagement with an approach to risk as a form of knowledge constructed and applied by particular actors in ways constitutive of the nature of risk itself. In particular, it argued that the idea of co-production, as developed in Science and Technology Studies, provided a useful conceptual avenue for understanding risk as both materially and socially produced (Jasanoff 2004). However, to understand co-production in the informal, urban context its understanding of expertise needed to be coupled with a stronger understanding of the workings of the urban state. Here, the chapter developed an analysis of state practice using work from urban studies, political science and theories of governmentality (Roy 2005; Zeiderman 2012; Gupta 2012). Finally, it examined how, through this lens, we might therefore understand societal responses to risk assessment. It concluded that theories in Science and Technology Studies opened up routes for understanding responses to risk in ways so far unconsidered in the literature on urban risk and vulnerability, namely as responses to the inclusions and exclusions inherent in risk assessments and the ways in which these impacted on livelihoods (Wynne 1996). However, critical engagement with theorisations of agency in response to state power and in the specific conditions of urban informality were necessary to frame questions about the modes of and possibilities for societal responses to risk assessment.

Chapter 4 discussed how new, more open and flexible methods were necessary to explore the approaches advocated in Chapters 2 and 3. Using such methods, the subsequent three chapters (5-7) then put the conceptual propositions of Chapters 2 and 3 to work using a case study of the landslide risk management programme in Bogota, Colombia, and its operations in three informally-settled landslide risk zones.

Chapter 5 concluded that the occurrence of landslides and the ongoing vulnerability of certain groups in formally-designated risk zones could not be fully understood

without accounting for political influences on risk assessment and management. These political influences were rooted in the particular history and culture of Bogota's urban transformation, with particular contests over the formalisation of new settlements (which affected who was held responsible for mitigating risk) and conceptions of urban citizenship and rights (which influenced who was defined as 'at risk' and included or excluded from new state programmes). The chapter showed how risk was co-produced with this politics of informality, creating new inclusions and exclusions. The analysis probed how the state's classification of households as 'at risk' was embedded in a particular political-bureaucratic matrix with its own antecedents in the state politics of the time. This functioned to obscure and exclude the ways in which risks were produced, not only in the biophysical domain, but also in the social context of livelihoods. The chapter then highlighted how the vulnerability of certain groups could not be explained without also probing how state risk management agencies – the 'social' – functioned; how state agency was exercised through particular flexible, contingent and contradictory practices (such as 'unmapping' (Roy 2005)) and how the networks of institutions at work in risk zones influenced the state exercise of power. As an approach to risk, therefore, the chapter showed how – far from being a physical condition or event alone – risk cannot be understood outside of the political relations that define it. As an approach to social vulnerability, the chapter showed how the continuous creation of vulnerability was enmeshed in the institutional context of the risk zones, and the state knowledge and politics that dominated this.

Chapter 6 went on to show how urban residents responded to risk in the context of the values and meanings inherent in risk assessments, and in response to the institutional practices that accompany them. In the informal, urban context it illustrated how people's response to landslide risk was framed by: their own concerns to secure appropriate housing and shelter; their understandings of their status and rights as urban citizens; their abilities to cope with and manage the impacts of landslides; and their judgements of state practices and expertise. Approaches to risk as hazard as well as existing approaches to understanding vulnerability in urban livelihoods overlook the ways in which these 'filters' of meaning affect decision-making in response to risk. Further, the chapter argued that the analysis called into question 'what' risks people in informal, urban areas were

adapting to. A narrow focus on responses to risk as biophysical risk alone misses the reality of responses to environmental change, and the way adaptation pathways are shaped by responses to environmental changes in the context of changes and risks to livelihoods (Forsyth and Evans 2013) and the politics of institutional relationships to expertise (Wynne 1996).

Chapter 7 concluded that a re-think of approaches to urban vulnerability to climate-related risks was necessary on three, inter-related grounds. The chapter showed how the inhabitants of risk zones used their agency to try and reshape the risks they faced, and the barriers to doing so. It therefore argued, first, for an approach to risk that emphasises access to institutions as an important determinant of vulnerability. However, it argued that access should be viewed not simply as a function of what people have, or the social group to which they belong, but also in terms of the relationships of power in which they are situated. Second, it highlighted how people's agency in response to risk was often contingent on, and forged through, personal relationships and networks. Finally, it stressed the importance of the political domain to people's agency, but showed how this was shaped by high-level political change as well as local institutional structures.

In sum, where existing approaches to risk – across the impacts-based and vulnerability traditions – treat the 'what' of risk as a given, the thesis has pointed to the importance of understanding the mutual construction of the natural and social in the urban context. This means placing the ways in which risk is defined and operationalised within their historical and political context and understanding how risks are shaped by social *and* political relationships of power. This leads us to understand how risk assessments mobilise particular visions of risk and exclude others, thereby defining who is at risk, or how risk is to be addressed in certain ways.

A re-politicisation of our approaches to disaster and climate change risk in urban areas entails understanding the socio-political context in which vulnerability emerges, the particular forms of urban governance and expertise operating in informal areas and the agency that poor urban communities can wield in response. This raises new questions for theories of urban adaptation about what we are adapting to, but also who is adapting and how. In the case examined for this thesis, different forms of adaptation are occurring both at the state and community level and

different adaptive responses are manifest within communities. The thesis suggests both a stronger emphasis on ‘politics as adaptation’ and moving away from in situ models of asset holding to a better understanding of the social and institutional relations of access which shape adaptive capacities.

8.3 How do states control for risk and vulnerability in informal, urban settlements?

As Chapter 1 posited, the impact of the state goes beyond planned risk management interventions, and the actions of state actors have intended and unintended effects. In addition, the question of how states control for risk and vulnerability allows for both positive and negative effects to be explored. Citing both vulnerability analysts and urban scholars, Chapter 1 underlined the importance of understanding the governance relationships that influence the status and development of informal urban settlements to assessing risks and vulnerabilities in these areas. Contemporary urban studies scholarship concerned with urban informality has stressed how states are not ‘outside’ the construction of informality, but deeply implicated in it (Roy 2005; Varley 2013). Impetus for the research question also comes from the fields of disaster risk and adaptation, where questions are increasingly being asked about the role of risk governance itself in shaping vulnerability but, as yet, there is little analysis of this at the scale of local government (DKKV 2012). Chapter 2 then showed how existing approaches to risk and vulnerability had so far little emphasised the role of the state, the nature of state practice and the ways in which the knowledge and expertise mobilised by states, such as risk assessments, are arrived at and used.

As set out in the previous section, Chapter 3 suggested that the question could not be answered without understanding the nature of and inter-linkages between risk assessment and the state and its politics. The chapter used debates in Science and Technology studies (STS) to shed light on how knowledge about risk might be influenced by the social context in which it is produced (Jasanoff and Wynne 1998; Lane, Landström, and Whatmore 2011), turning to the idea of co-production as a framework which stresses the importance of analysing the emergence of the social alongside the scientific, and the role of power and culture (Jasanoff 2004). To then unpack the nature of urban state governance in informal settings, I examined debates about state practice in urban studies and amongst governmentality theorists,

concluding that while these provided new accounts of state action they could not account for the political construction of expertise (ibid.). Finally, the chapter concluded that in order to understand the state politics of risk, it was necessary to extend existing scholarship about the nature of societal agency in response to risk assessment, which shapes how we understand the limits to state power.

The case study analysis of Chapters 5 to 7 then exemplified how this theoretical framing explained how state risk management measures wittingly and unwittingly influenced the occurrence of risk and vulnerability in informal urban settlements, in the sense of both mitigating and exacerbating effects. In showing how landslide risk assessments were effectively co-produced with the values, culture, norms and practices of the state in Bogota, Chapter 5 demonstrated how the technical culture of risk management that arose in Bogota's political history excluded local perspectives on risk and analysis of the social drivers of risk. Further, it concluded that assumptions about the social and political context made during risk assessments – despite their purported technical nature – could be linked to ongoing landslide events. In addition, ongoing processes of inclusion and exclusion from the risk management programme – which affected which households and groups were exposed and sensitive to landslides – were influenced by the coupling of risk assessment with a particular mode of classification of population groups, informed by state imperatives that lay beyond the purposes of risk management alone. The second part of the chapter showed the effects of state efforts to manage risk could not be understood without understanding how state operations were, in practice, flexible, contingent and often contradictory and how the operations of risk management agencies converged or diverged with the actions of other state and local actors.

Chapters 6 and 7 showed how state control of risks and vulnerability was mediated by the response of societal actors to the values, meanings and practices embedded in risk assessments. The politics of this relationship generated deep ambivalence among communities about the nature of the state project. Nevertheless, Chapter 7 concluded that the agency of households and individuals to remake their livelihoods was highly constrained. However, opportunities for agency were not uniform and avenues for contestation were in part opened by the trajectories of political reform that have accompanied the project of risk management.

The thesis therefore makes a new theoretical contribution in linking debates about risk and vulnerability to those about state practice and expertise in the context of urban informality. It takes forward existing work applying post-structural scholarship to the practice of disaster and climate risk management in two ways. First, in applying insights from STS to understand the way in which expert knowledge is brought together and applied at the interface of the natural and social worlds, revealing how risk assessments thereby mobilise new forms of inclusion and exclusion. Second, in broadening our understanding of the ‘subjects’ of risk, their meanings, values and possibilities for agency and the ways in which this agency is shaped by the visions of risk inherent in risk assessments. The thesis emphasises how these processes are informed by a particular politics of informality, and contests over citizenship, rights and livelihoods in informal urban settlements. Further, it connects livelihoods debates in development studies with new scholarship in STS, showing how access relations are shaped by the politics of defining risk itself, and the new inclusions and exclusions this creates.

8.4 Policy implications

In Bogota, recent attempts to improve climate change preparedness in the city have led to an intensification of the disaster risk management model examined in this thesis. However, the findings of the thesis offer synergies with other analyses of the disaster management system that stress that without understanding and acting on the drivers of social vulnerability in the city, disaster managers will face the ongoing exposure and sensitivity of populations in risk zones (Lampis and Rubiano 2012). In part this necessitates grappling with how to protect people against risk whilst also protecting their livelihoods (including the value and meaning these have for people), whether through more sensitive resettlement policies or the introduction of insurance policies (as has been done in the Colombian city of Manizales), but also in involving local populations in decisions about mitigation measures. Small experiments to this effect exist, but have not been scaled-up (for more on this, see <http://www.bartlett.ucl.ac.uk/dpu/mapping-environmental-change/dialogues-on-the-move/bogota>). A further implication is that state actors begin to recognise the role of state practice itself in mitigating and exacerbating risk, although improved practice and the convergence of state agencies around the same, existing paradigm without

acknowledgement of the implications for livelihoods and vulnerability would undermine the purpose of risk management.

In informal, urban contexts, the thesis adds weight to calls by numerous authors to strive for ‘transformative’ climate adaptation policies and practices that tackle underlying power structures and injustices and respect the livelihoods needs and practices of the most marginalised groups (Pelling 2011; Allen, Castan-Broto, and Johnson 2011). A first step to doing this, as Ribot argues, is to ensure that vulnerability assessment, in its fullest sense of analysing the causal structures of vulnerability, is an integral part of adaptation practice (Ribot 2011).

At the level of global policy debates, the findings of the thesis add weight to calls for multi-stakeholder governance in the risk sector (see IPCC 2012) but suggest in addition that there is a need to examine how risk is framed and communicated in such fora by different actors (given the different approaches to risk outlined here as well as the relationships of power which are carried into such interactions). Improved deliberation may also be insufficient without acknowledging the broader structural and developmental factors that shape people’s ability to cope with and prepare for risk – a point that vulnerability theorists have long stressed (Blaikie et al. 1994).

This study also touches on the use of particular policy measures that are being advocated as urban ‘adaptation measures’ such as resettlement, land use zoning and building control. Again, the importance of this study is to suggest that we understand how risks are defined as the basis for these measures and by whom, and how this legitimises action by particular actors in particular ways. In the case of resettlement policies in the face of environmental risks, like those examined in this thesis, the literature stresses the (valid) need to accommodate people’s livelihoods and ensure proper consent (World Bank 2011). However, a further important question is who is defined as ‘at risk’ and included in resettlement programmes, how they are defined and by whom, and how this affects efforts to manage risk and vulnerability.

8.5 Suggestions for future research

Based on the research, I suggest five avenues for further study. First, the theoretical approach can be used to examine a broader set of case studies with an explicit focus on urban climate change adaptation policies. Since the thesis research was

conceived, a ‘wave’ of adaptation policy-making has taken place in cities of the developing world. However, little attention has been paid to how and why the form of adaptation policies, and the risk assessments that underlie them, might differ across contexts. Here, co-production might again provide a useful frame to interrogate the intertwined social and natural production of risk, alongside further analysis of the state practices that are shaping adaptation policies and planning. A more dedicated focus on climate change adaptation would raise additional questions about the use of often highly uncertain climate models and the process of ‘fixing’ them for planning purposes than it has been possible to explore in this thesis.

Second, the analysis of institutions presented here touches on the role of legal institutions and state bureaucracies in mediating vulnerability. While the workings and influence of these institutions are receiving attention in other fields (see Gupta on bureaucratic practice and poverty and Biehl on the role of the judiciary and health risks in Brazil: Gupta 2012; Biehl et al. 2012) there has been little in-depth exploration of their role in relation to environmental risk.

Third, there is a need to explore how other dimensions of informal, urban livelihoods shape responses to risk and vulnerability. The fieldwork undertaken for this thesis pointed to the importance of mobility and social networks inside and outside risk zones to the management of risk. These aspects are not easily captured in quantitative frameworks for assessing vulnerability and merit further, dedicated qualitative investigation, even if quantitative proxies are then developed to allow for their measurement.

Fourth, although a policy implication of the thesis is to favour multi-stakeholder governance models for risk management, there has been little comparative investigation of the nature of deliberation in these forms of institutional arrangements, and how competing values at different scales are addressed through multi-stakeholder participation. Applied to urban climate change adaptation in particular, this raises pertinent questions about lay engagement with climate models, and the need to bridge the gap in public perception between foreseeable and unforeseeable, past and future climate events.

Fifth, and finally, there is a need to understand the resonances of this thesis for other theoretical frameworks for understanding risk and adaptation. For reasons briefly

outlined in Chapter 2, resilience theory (and recent work in urban political ecology, although this has had less purchase in debates about climate risk) was not used as the lens for this project. However, additional work should explore the implications of its findings for current debates in these traditions, extending existing efforts to unpack relationships between resilience and vulnerability perspectives (Miller et al. 2010; Scoones 2009) and complementing new work on the use of resilience perspectives in urban contexts (Béné et al. 2014; Ensor et al. 2013).

Annex 1: List of government interviewees

Interview code	Position	Date of interview
DO001	Resettlement officer for San Cristobel and Corinto district, Caja de Vivienda	June 21 2010
DO002	Legal advisor, Caja de Vivienda	June 21 2010
DO003	Former Director of Resettlement, Caja de Vivienda, (2004-2007) and DPAE employee (1997-2003), Anthropologist	June 23 2010
DO004	Local management team, DPAE	June 23 2010
DO005	Social workers, Social Management Team, DPAE	June 24 2010
DO006	Consultant. Former employee of Secretaria Habitat with responsibility for resettlement policy (2000-2007), World Bank consultant for Latin America resettlement documentation project (2008 -)	June 25 2010
DO007	Customer Manager GeolIngenieria – 1995-2006 Coordinator of Ladera programme in Territorial Management team, DPAE	June 25 2010
DO008	Officer, Caja de Vivienda	June 26 2010
DO009	Social Worker, Former Director Social Management Team, DPAE 1999 – 2008	June 29 2010
DO010	Caja de Vivienda, Ciudad Bolivar team, local office (Salon Communal Arborizador Alta)	Field visit June 30 2010
DO011	Social workers responsible for resettlement, Altos de Estancia team, DPAE	During field visit June 30 2010
DO012	Head – Social Management Team, Altos de Estancia, DPAE	July 2 2010
DO013	Technical Assistance Team, DPAE	July 2 2010
DO014	2002-2008 Head social team charged with evacuating 800 families in Altos de Estancia, DPAE; then Caja de Vivienda official	July 2 2010
DO015	Advisor, Ministry Environment	Jan 3 2010
DO016	Head, Gestion Territorial, DPAE	Jan 3 and 13 2010
DO017	Consultant, Secretaria Distrital de Ambiente (Environment Ministry)	Jan 7 2010
DO018	Social Worker, Altos de Estancia Management Team, DPAE	Jan 13 2010
DO019	Ministry of Environment representative on Altos de Estancia team	Jan 13 2010
DO020	Mapping team, DPAE	Jan 13 2010
DO021	Officer, Caja de Vivienda	Jan 14 2010
DO022	Profesor, Universidad de los Andes, formerly part of district planning team	Jan 14 2010
DO023	Former Ciudad Bolivar Coordinator, DPAE	23 March 2010
DO024	Officer, Secretaria de Desarrollo Comunitario	15 December 2009
DO025	Officer, Secretaria de Habitat	16 December 2009 and Jan 18 2010
DO026	Disaster Management Specialist World Bank, formerly DPAE Director 2003 – Nov 2006	10 April 2010

DO027	Disaster Risk Consultant	Jan 12 2010
DO028	Former Director DPAE 1998-2002	Jan 18 2010
DO029	Director Legalisation and Barrio Improvement, District Planning Department	Jan 18 2010
DO030	Officer Responsible for Vigia Programme, DPAE	Jan 18 2010
DO031	Regional Disaster Risk Management Consultant	Jan 18 2010
DO032	Risk and disaster management specialist, Ministry Environment	Nov 28 2009
DO033	Former DPAE Technician	2009-2010

Annex 2: Semi-structured household survey

NOMBRE DE ENTREVISTADOR

FECHA Y HORA

LOCALIDAD, UPZ, BARRIO, MANZANA, UBICACION

A. DATOS DEL HOGAR

1. Nombre y Apellido (opcional)

2. Edad (años)

3. Sexo ☐ M ☐ F

4. ¿Cuál es su lugar de nacimiento?

5. ¿Donde vivia antes de vivir aca?

6. Que rol tiene en el hogar

☐ 1. Padre ☐ 2. Padre cabeza de familia ☐ 3. Madre

☐ 4. Madre cabeza de familia ☐ 5. Otro _____

7. ¿Hace cuanto vive en esta casa?

8. Su vivienda es:

1. ☐ Propia, totalmente pagada

2. ☐ Propia, la estan pagando

3. ☐ En arriendo

4. ☐ En subarriendo

5. ☐ De otra persona, sin pagar arriendo

6. ☐ Ocupante de hecho

9. Tiene:

1. ☐ Escritura

2. ☐ Promesa de venta

3. ☐ Ningun papel de compra

4. ☐ No sabe

5. ☐ Otro.....

10. ¿Quienes comen y duermen habitualmente en el hogar?

	1. Parentesco (identificar jefe de hogar) e.g. Esposo (a) / Compañera (o); hijo	2. Sexo (M/F)	3. Edad
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

11. ¿Cual es el material predominante de las paredes exteriores?

1. ☐ Bloque, ladrillo, piedra, madera pulida
2. ☐ Tapia pisada, adobe
3. ☐ Bahareque revocado
4. ☐ Bahareque sin revocar
5. ☐ Madera burda, tabla, tablón
6. ☐ Material prefabricado
7. ☐ Guadua, caña, esterilla, otro vegetal
8. ☐ Zinc, tela, lona, cartón, latas, desechos, plástico
9. ☐ Sin paredes

12. ¿Cual es el material predominante de los pisos?

1. ☐ Mármol, parqué, madera pulida y lacada
2. ☐ Alfombra o tapete de pared a pared
3. ☐ Baldosa, vinilo, tableta, ladrillo, madera pulida
4. ☐ Madera burda, tabla, tablón, otro vegetal
5. ☐ Cemento, gravilla
6. ☐ Tierra, arena

13. ¿Cuántos pisos tiene la casa?

14. ¿Cuántos cuartos tiene la casa (incluyendo banos y cocina)?

15. ¿Cómo es la vía que llega a la casa?

1. ☐ Pavimentada
2. ☐ De barro, viable para transporte
3. ☐ De barro, no viable para transporte
4. Otro.....

B. DATOS SOCIO-ECONOMICOS

16. Para las personas que han generado ingresos para el hogar en el ultimo año:

Actividad de la persona	a. Las actividades se realiza: 1. En casa 2. En el barrio 3. En el sector 4. En otro sector de Bogota 5. Fuera de Bogota	b. Las actividades son: 1. Permanente 2. Por días 3. Casual (Por vacaciones, por temporadas)	c. Cuánto gana en este empleo Por día O por mes O por año (Nota el valor para lo que mas aplica)

17. En el ultimo año recibieron algun ingreso de:

	Si / No	Valor
1. Arriendo de casa		
2. Arriendo de vehículos, maquinaria, equipo		
3. Fondo de pensión		
4. Otros ayudas o subsidios de instituciones públicas		
5. Algún ayuda proveniente de otros hogares o personas residentes en el país		
6. Otro		

18. ¿Ha recibido algun prestamo en el ultimo año?

- ☐ No → Pase a 14.
☐ Si → a. De que valor?
 b. De que persona o entidad?

19. ¿Cuáles de los siguientes bienes posee este hogar?

- | | |
|--|--|
| <input type="checkbox"/> 1. Máquina lavadora de ropa | <input type="checkbox"/> 2. Nevera o enfriador |
| <input type="checkbox"/> 3. Equipo de sonido | <input type="checkbox"/> 4. Estufa eléctrica o a gas |
| <input type="checkbox"/> 5. Horno eléctrico o a gas | <input type="checkbox"/> 6. Lijadora |
| <input type="checkbox"/> 7. Máquina de coser | <input type="checkbox"/> 8. Televisor |
| <input type="checkbox"/> 9. VHS | <input type="checkbox"/> 10. DVD |
| <input type="checkbox"/> 11. Radio | <input type="checkbox"/> 12. Computador para uso del hogar |
| <input type="checkbox"/> 13. Motocicleta | <input type="checkbox"/> 14. Carro particular |
| <input type="checkbox"/> 15. Bicicleta | <input type="checkbox"/> 16. |
- Otro.....

20. ¿Que niveles de educación tienen las personas en el hogar?

1. Preescolar				
2. Básica primaria (1 a 5)				
3. Básica secundaria y media (6 a 13)				
4. Técnico o tecnológico				
5. Universitaria sin título				
6. Universitaria con título				
7. Ninguno				

21. Cuantos personas en el hogar:

1. Sufren alguna enfermedad crónica (hipertensión arterial, diabetes, etc.)				
2. En el ULTIMO AÑO tuvieron alguna enfermedad, accidente, problema odontológico o algún otro problema de salud que no haya implicado hospitalización				
3. Durante el ULTIMO AÑO tuvieron que ser hospitalizado				

22. ¿Cuantos personas en el hogar estan vinculados al SISBEN?

23. ¿Si no, porque?

24. ¿De donde consiguen servicios que tiene la vivienda?

	Públicos, comunales, privadas	Pagada Si / No
1. Energía eléctrica		
2. Gas natural		
3. Acueducto		
4. Alcantarillado		
5. Recolección de basuras		
6. Teléfono fijo		
7. Ninguno de los anteriores		

25. Cuantos personas en el hogar hacen parte de alguna organización social o iniciativa de participación ciudadana:

1. Ningun	2. Comités locales	3. Junta	4. Reuniones comunales	5. Acciones comunales regulares	6. Acciones compartidas con los vecinos regulares	6. Otro (por ejemplo, defensa civil, vigia ambiental, policia comunitaria)

C. RIESGO

26. La vivienda esta clasificada como:

- ☐ 1. En alto riesgo no-mitigable ☐ 2. En alto riesgo mitigable
☐ 3. En riesgo medio ☐ 4. No sabe

27. ¿Cuándo fue clasificada así?

28. ¿Cuándo se trasladaron por aca sabian que podia presentar derrumbes / movimientos de la tierra aca?

- ☐ No
☐ Si

29. ¿Han sentido los efectos de un derrumbe / de un movimiento de la tierra?

- ☐ No → Pase a 32.
☐ Si → Pase a 30.

30. ¿Nos puede describir que paso y con que frecuencia?

¿Como afectaron estos eventos al hogar en terminos de la vivienda, la salud de las personas, sus bienes, su ingreso, su educación, y otros efectos relevantes?

31. ¿Que acciones tomaron para enfrentar estos eventos y prevenir danos futuros?
(Por ejemplo: llamar a los bomberos, reubicarse temporalmente, reparaciones a casa, hacer canales al lado de la casa, buscar prestamo, buscar el apoyo de la junta, hacer obras comunitarias.)

SI NO HAN SENTIDO NUNGIN EFECTO

32. ¿Perciben que viven en una zona en que podian presentar este tipo de fenomeno?

- ☐ No
☐ Si

Si si: ¿Por qué? ¿Que acciones han tomado para prevenir danos futuros?
(Por ejemplo: nada, llamar a los bomberos, reparaciones a casa, hacer canales al lado de la casa, buscar prestamo, buscar el apoyo de la junta, hacer obras comunitarias.)

33. ¿Ustedes fueron incluidos en unas de los siguientes medidas?

- ☐ 1. Desalojo inmediato de la vivienda
☐ 2. Restriccion parcial de uso
☐ 3. Programa de reasentimiento
☐ 4. Uso condicionado de la vivienda (mientras se hacen obras de mitigacion o estudios)
☐ 5. Programa de mejoramiento integral de vivienda
 → Pase a 34 y 35.

☐ 6. Ningun tipo de programa municipal → Pase a 36.

34. ¿Cómo sabian de las medidas que iban a tomar en la zona?

- ☐ Nunca sabia
☐ La DPAE hizo una visita a casa
☐ La DPAE ha hecho multiples visitas a mi casa
☐ En una reunion con la DPAE
☐ En un taller con la DPAE
☐ En una reunion comunitaria
☐ Por mis vecinos
☐ Otro – cual?.....

35. ¿Nos puede describir que ha sido el proceso?

¿Que tenían que hacer para ser incluidos (Por ejemplo: nada, mostrar prueba de venta, comprar prueba de tenencia, formar parte de una acción comunal, participar en un nuevo census)?

¿Qué han implicado estas medidas por ustedes?

¿Si no querían acceder al programa, porque?

36. ¿Por qué no fue incluido? ¿Que acciones han tomado o están tomando para ser incluidos?

GRACIAS POR SU COLABORACION.

OBSERVACIONES ADICIONALES DEL ENTREVISTADOR.

(BUENA PERSONA PARA HACER UNA HISTORIA DE VIDA MAS AMPLIA? –
PARECE CONFIABLE, ABIERTA, DISPUESTA)

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